Tell Me Something I Don't Know: Self-Disclosure, Mental Health, Relationship Quality, and Contextual Factors from Adolescence to Adulthood

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Abstract

This study examines links from self-disclosure with best friends in adolescence to contemporaneous and long-term relationship quality and internalizing symptoms from adolescence to adulthood. A diverse community sample of adolescents (N = 184) participated in survey and observational measures annually from ages 13 through 29, along with close friends and romantic partners. Random Intercept Cross-Lagged Panel Models were used to parse markers of within-individual change across age 13 to 18. Long-term longitudinal path models also investigated cascading associations from self-disclosure, relationship quality, and internalizing symptoms, on aggregate, from adolescence to adulthood. Analyses considering key demographic and neighborhood contextual factors explored potential developmental moderation. Findings are interpreted through the lens of iterative social learning: adolescent development is shaped by social input, to which they are particularly attuned. The best friendship, a key source of support, serves as a foundational context for supportive, vulnerable interactions in adolescence that pan forward into adulthood. Adolescents situated in high-quality relationships engage in more self-disclosure, and high self-disclosure encourages self-disclosure by others; prompting a positive "upward spiral" of disclosure and supportive behaviors that persists into adulthood. Ultimately, the aim of this work is to identify developmental trajectories associated with self-disclosure in adolescent best friendships, to best support teens' functional social learning across the lifespan.

Tell Me Something I Don't Know: Self-Disclosure, Mental Health, Relationship Quality, and Contextual Factors from Adolescence to Adulthood

Adolescence is a developmental period marked by intense physical, emotional, and social change. Although the teenage years have been acknowledged as a formative time period for decades, research has recently identified potentially lifelong implications of social experiences that occur during this life stage (Allen et al., 2018; Holt-Lunsted et al., 2010; Smith et al., 2004). As young people progress through their teenage years, they engage with a major social task: learning to navigate close, emotionally intimate relationships with friends while also defining a sense of "self" and maintaining their own autonomy (Oudekerk et al., 2015). Self-disclosure—the extent to which a teen shares their personal or private thoughts and feelings with others—increases in the teenage years (Burhmester & Prager, 1995). The extent to which adolescents learn to self-disclose appropriately has been suggested as a key marker for teens' balancing of individuality and engagement in friendships marked by intimacy, or meaningful closeness (Bauminger et al., 2008). This process of simultaneous interpersonal and intrapersonal growth has been increasingly linked to both short- and long-term mental and relational health outcomes (Allen et al., 2018; Holt-Lunsted et al., 2010; Narr et al., 2019). With an eye to these outcomes, work has time and again highlighted a need to understand how teens develop their ability to self-disclose, how that disclosure meets their social needs in the moment, and how disclosure, in turn, influences individual development (Buhrmester & Prager, 1995; Towner et al., 2022). The current study seeks to develop this understanding by investigating self-disclosure across adolescence, with particular focus on the role of disclosure as related to friendship quality and mental health from adolescence to mid-adulthood.

Self-Disclosure. *Self-disclosure* refers to communication in which an individual shares personal or private information (such as, but not always, personal thoughts and feelings) with a conversation partner in order to make themselves known to that other person (Pearce & Sharp, 1973). Self-disclosure

can be viewed from several perspectives: as a reflection of a personality trait (Berg & Derlega, 1987); as an interpersonal, dyadic process reflecting some quality of the relationship and the individuals involved in it (Dindia, 2002); or as a tool, skill, or behavior that an individual uses to meet a social or emotional need (Franzoi & Davis, 1985). Each self-disclosing interaction can be characterized by individuals' varying levels of social skills, differences in relational context and partner, and sharers' motivations and goals when disclosing (Ignatius & Kokkonen, 2007). In its position at the convergence of these individual, dyadic, and contextual factors, self-disclosure is dynamic and complex (Harris et al., 1999). This complexity makes self-disclosure challenging to study and has limited the amount of available literature characterizing its development.

Although there are multiple aspects of self-disclosure (Cordova & Scott, 2001), the proposed study focuses on intensity of *superficial* vs*. intimate* disclosure, which describes the extent to which a sharer is making themselves vulnerable by sharing (Collins & Miller, 1994). Intimate, more intense disclosure that includes more personal information is more likely to occur in friendships and relationships high in intimacy (Collins & Miller, 1994). The intensity of self-disclosure has been identified as particularly important for fostering intimacy and connection among conversation partners, while also carrying some significant social risk (Rose, 2002). Intimate self-disclosures are quite vulnerable, and place both teens and their close friends in an emotionally high-stakes conversation that could contribute to an individual's long-term beliefs about themselves, others, and disclosure. Thus, the proposed study focuses on understanding the depth of self-disclosure, similar to this dimension of superficiality vs. intimacy, in order to gain a better understanding of how adolescents learn to use these disclosures, the contexts in which those disclosures are useful, and to weigh any risks for those who may not learn to use intimate disclosure within their close friendships in adolescence.

Other, co-occurring dimensions of disclosure have been introduced in order to better understand the interpersonal processes occurring in interactions marked by self-disclosure. *Partner-*

inclusive vs*. partner-exclusive* disclosure describes the extent to which the disclosure recipient is implicated in the disclosure, with that implication likely contributing to supporters' feelings of defensiveness or openness in supportive interactions (Cordova & Scott, 2001; Khalifian & Barry, 2020). *Online* vs*. offline* disclosure describes the format of disclosures, with previous work asserting that offline, in-person self-disclosure has greater implications for both friendship quality and the emotional impacts of that disclosure on the sharer (Towner et al., 2022). The proposed study employs annual, observational support-seeking tasks to investigate adolescents' natural tendencies to disclose with peers, the extent to which that disclosure is vulnerable (and, therefore, intimate), and long-term mental and relational health outcomes.

Self-Disclosure within Close Relationships. Self-disclosure is an important building block for the initiation and maintenance of close relationships (Bauminger et al., 2008). Previous theories about the role of self-disclosure within close relationships suggest that disclosure changes across the duration of a given relationship, with disclosure levels often increasing in both intensity and frequency over time, facilitating intimacy between close individuals when those exchanges go well (Liu, 2014). This may be related to the inherently rewarding nature of self-disclosure, especially when disclosures are met with acceptance and empathy (Haydon et al., 2012; Reis, 2014). Broadly, these sorts of iterative learning experiences within close friendships can either reinforce or discourage social behaviors, based on the way that peers respond (Mikulincer & Shaver, 2020; Stotsky et al., 2020). In cases where disclosure is met with understanding, teens continue to disclose, whereas teens whose disclosure is met with rejection may not disclose again, reducing learning opportunities (Loeb et al., 2020). Despite the empirical and intuitive role of self-disclosure in building new relationships, little is known about the natural, longitudinal progression of self-disclosure within a key close relationship: adolescent best friendships. The best friendship has been identified as particularly important for predicting adult mental and relational health outcomes (Allen et al., 2021). Considering the importance of self-disclosure in

developing intimate friendships and the possible downstream associations of those friendships, the proposed study focuses on disclosure between teens and their closest friend through age 18.

Decisions to Disclose and the Development of Disclosure. Teens' experience learning about self-disclosure may carry significant social risk and reward. As close relationships grow in emotional intensity during adolescence, teens are pushed to balance autonomy and useful sharing of themselves (Bauminger et al., 2008), while also demonstrating acute social attunement and sensitivity (Somerville, 2013). As they progress through this learning curve, teens are highly responsive to perceived peer evaluation (Somerville, 2013). This complicates the meaning of disclosure within close relationships, adding increased weight to findings that individuals who disclose more are rated as more likeable and more socially skilled by their peers, *and* often receive more disclosure from other peers, in turn (Worthy et al., 1969). Self-disclosure, by definition, makes the sharer vulnerable to peer reaction and evaluation. This heightened momentary vulnerability may be compounded by potential, broader social implications of decisions about when, how, and to whom disclosures are made.

The relatively high-stakes choice to self-disclose is influenced by individual, relational, and contextual factors that converge to influence both whether a disclosure will occur and how effective or helpful that disclosure is for the sharer and the friendship (Buhrmester & Prager, 1995). At the individual level, teens in higher-quality close relationships demonstrate greater willingness, interest, and flexibility in self-disclosing exchanges (Mikulincer & Nachshon, 1991). Repeated experiences with disclosing likely help teens navigate emotionally challenging conversations, receive beneficial responses from their peers, and cope with any discomfort that arises from the exchange (Mikulincer & Shaver, 2016). Individual biology may also come into play throughout this process, with epigenetic differences demonstrating a role in amplifying or attenuating the role of social input for individuals' well-being (Carter et al., 2020). In addition to teens' biology and understanding of themselves and close friends, the functions of self-disclosure may vary based on the goals of that disclosure, which are inherently tied to

the audience of the disclosure as well as the sharer's perceptions of their relationship (DeFrino et al., 2016; Furman, 2018; Hombrados-Mendieta et al., 2012). At the relationship level, several factors may influence teens' decisions to disclose, including partner availability, relationship quality, frequency of opportunities to disclose, and constraints to disclosure based on the composition of the dyad (for example, gendered expectations that support girls' self-disclosure and expression of emotion, but only reinforce some types of sharing for adolescent boys; Gillespie et al., 2015; Seiffge-Krenke et al., 2014). At the contextual level, societal and cultural expectations significantly shape the opportunities that adolescents have to practice vulnerable conversations, as well as the valence and meaning of those conversations (Conger et al., 2010; Consedine et al., 2007; Hamid, 1994). Vulnerable self-disclosure may have very different meaning for adolescents experiencing socioeconomic disadvantage; their cognitive and emotional energy may be expended elsewhere if they face challenges such as housing or food insecurity (Evans & Kim, 2013; White & Gager, 2007). As such, the proposed study explores the role of gender identity and socioeconomic status in levels of self-disclosure, short-term associations, and long-term implications of patterns of disclosure.

Self-Disclosure and Mental Health. Self-disclosure has significant implications for mental health, both concurrent to and because of the disclosure process (Berry & Pennebaker, 1993; Mayne 2001). In the short-term, peers' responses to teens' statements of emotional vulnerability reduce depressive symptoms immediately after the interaction if the response is perceived as sufficient and warm by the sharer (Reis, 2014). Self-disclosure has been described by some as a tool that individuals use to intervene on their own loneliness, by garnering support and responsiveness from friends when feeling particularly down (Franzoi & Davis, 1985). It follows that, longer-term, if a teen regularly and effectively discloses, they likely are also building confidence in their capacity to get their own social needs met and building up their stock of supportive relationships with others, both of which are related to increases in well-being and life satisfaction (Sloan, 2010). In contrast, previous work has found that suppression and

avoidance of sharing personal information is associated with negative mental health outcomes (Mayne, 2001).

This is not to say that interpersonal processes involving disclosure are without risk. It is possible that these interactions are contexts ripe for co-ruminative interactions, which involve cyclical problem-talk without resolution (Rose, 2002). Co-rumination has negative implications for both conversation partners' mental health, with particular links to increases in depressive symptoms immediately after the interaction (Rose, 2002). In adolescent close friendships, baseline depressive symptoms predict future symptoms in the context of emotionally intense interactions—these links suggest a sort of amplification of baseline tendencies, such that teens with greater depressive symptomatology who engage in these intense interactions endorse even more significant symptomatology one year later (Costello et al., 2020). Again, many factors converge that make emotional conversations challenging and high-stakes to navigate. They are rife with opportunities for social learning and may also have major implications for immediate and long-term internalizing symptoms. In sum, existing work offers two potentially competing theories: perhaps teens engaging in emotionally intense conversations with best friends feel relief from that conversation, or perhaps both members of the dyad are negatively affected by the intensity of that interaction. To understand the relations between self-disclosure and mental health, the proposed study considers both contemporaneous and future mental health when investigating the role of self-disclosure in predicting changes in mental health symptoms over time, with a particular interest in the subset of the sample that engages in chronically low self-disclosure with friends.

Self-Disclosure and Relationship Development. Self-disclosure is associated with well-being through its role in developing intimacy, or meaningful closeness, between friends and other types of interaction partners (Pietromonaco et al., 2013; Uchino, 2009). In intimate friendships, vulnerable disclosures elicit responsiveness and are key in both establishing and maintaining long-term closeness (Reis & Shaver, 1988; Roberts & Greenberg, 2002). By sharing personal information, individuals implicitly

communicate a desire to be known, understood by, and close to a friend (Ashktorab et al., 2017; Liu & Brown, 2014). Closeness and trust build individuals' ability to get emotional support, improve relationship quality, and ultimately cascade forward into future relationships when disclosers view their friend or partner's responses as validating, caring, and supportive (Reis & Shaver, 1988; Laurenceau et al., 2005; Cordova & Scott, 2001). These close interpersonal experiences within adolescent friendships may have significant bearing on functioning in adulthood, as they set the stage for similar processes in future romantic relationships (Allen et al., 2020; Ruben et al., 2010; Waters & Sroufe, 1983). With this in mind, the proposed study seeks to examine the role of disclosure in adolescent close friendships in predicting disclosure and intimacy within romantic relationships in adulthood.

Biological and Contextual Factors. Development proceeds differently based on individuals' context and the meaning of social vulnerability in that context. Individual differences in biology, context, and biological sensitivity to that context intersect and can potentially influence the role of important social influences (Perkybile et al., 2019). Recent work on biologically based differences in social sensitivity has pointed to the role of oxytocin, a neuropeptide that plays an important role in social and emotional attention and processing (Carter et al., 2020). With particular relevance to self-disclosure, higher levels of oxytocin have been associated with more engagement with social connections in the midst of stressful situations, as suggested in the "tend-and-befriend" theory (Taylor et al., 2000). Notably, in order for endogenous oxytocin to have an effect on an organism, it must bind to the oxytocin receptor, the synthesis of which is directed by the oxytocin receptor gene (*OXTR*; Maud et al., 2018). Environmental processes and biology reciprocally exert their effects on one another through a process of epigenetic modification called *methylation*, in which methyl groups bind to DNA and interrupt transcription factors from binding to the DNA, in essence "turning off" the gene within that cell (Maud et al., 2018). Individuals with relatively high proportions of methylation across many cells may be less sensitive to the input of oxytocin and therefore demonstrate lower levels of social motivation,

attunement, or learning (Carter et al., 2020). Methylation of the oxytocin receptor gene (*OXTR*m) has been previously connected to reductions in levels of social sensitivity, while lower levels of *OXTR*m have been linked to increased social interest and connection (Gonzalez et al., 2021). Considering the vulnerable and, at times, intense nature of self-disclosure, it is possible that individuals with relatively lower levels of *OXTR*m—meaning, more expression of oxytocin receptors and more capacity to "use" endogenous oxytocin—may be more likely to engage in disclosing interactions *and* be more likely to benefit from others' responsiveness to that disclosure (Gonzalez et al., 2021). In order to investigate inks between these biological mechanisms, self-disclosure, and long-term mental and relational health, the proposed study uses measures of methylation at CpG sites (sites at which a cytosine nucleotide is followed by a guanine nucleotide) -860, -924, and -934 on the *OXTR* gene, which has been found to be related to exposure to stressful environments and may play a role in the salience of social interaction and the connections humans are able to build (Danoff, et al., 2021). Perhaps individuals with lower levels of methylation on their *OXTR* gene are more able to take social risks effectively, and more likely to reap the benefits of those social risks.

Related work has identified interactions between individuals' biological susceptibility to social input (as measured by methylation of *OXTR*) and the level of risk in their immediate context (Puglia et al., 2015). Within a given individual, *OXTR* methylation has been proposed as one mechanism by which environmental context may indirectly influence psychological outcomes related to mental health and relationship functioning (Bales & Perkybile, 2012). Methylation of *OXTR* is associated with reduced expression of the oxytocin receptor, reducing the impact of exogenous oxytocin on cells and potentially reducing sensitivity to social input and social reward (Gimpl et al, 2001; Yoshida et al., 2009). Early life experiences have been shown to influence and be influenced by *OXTR* methylation, a process described as the Adaptive Calibration Model, which suggests that biological systems adjust to meet specific needs suggested by the developmental context (Ellis et al., 2017). In this process, individuals with more

supportive environmental contexts have been shown to develop heightened attention and receptivity to social input through decreases in *OXTR* methylation (and, thus, corresponding increases in the impact that oxytocin in the brain can exert on behavior; Gonzalez et al., 2021). The role of methylation in different environmental contexts is complex, however; it may both reflect and amplify the role of limited exposure to social learning opportunities for teens from disadvantaged backgrounds, particularly if those teens are exposed to harsh environmental circumstances (Shamay-Tsoory & Abu-Akel, 2016). Thus, this study considers neighborhood harshness and *OXTR* methylation in order to evaluate whether environmental harshness may be playing a role in self-disclosure through its ties to *OXTR* methylation.

Impact. This project is motivated, in combination, by existing work that identifies self-disclosure as a key component of the establishment, maintenance, and consolidation of meaningful close relationships (Bauminger et al., 2008) and other work that highlights *lacking* supportive relationships as a key risk factor for challenges with anxiety, depression, and relational health (Allen et al., 2018; Narr et al., 2019) as well as physical ailments such as chronic inflammation, hypertension, and cardiovascular disease (Allen et al., 2017; Smith et al., 2004; Valtorta et al., 2016). As the link between adolescent social development and lifelong functioning becomes increasingly clear, it highlights the need to better understand the progression of adolescent close relationships, the predictors of functioning within those relationships, and mechanisms underlying eventual flourishing and stress through mid-adulthood. By understanding the natural progression of self-disclosure and its links to concurrent and future functioning, we will be best poised to engage young people with supports and interventions that facilitate the positive aspects of peer relationships and potentially mitigate the harmful effects of social isolation and disconnection.

The Current Study

Acknowledging complexity in the roots and implications of self-disclosure within adolescence, the current study examines observations of self-disclosure, social support, self-reports of functioning,

and best friend reports of social perceptions across the decade. This is a long-term, exploratory investigation of the development and implications of the capacity to self-disclose within adolescent close friendships and adult romantic relationships. The study uses prospective multi-reporter data in a socio-demographically diverse community sample, followed from age 13 to age 29, to investigate the following specific hypotheses regarding self-disclosure, mental health, and relationship functioning over time:

1. **Characterizing the Self-Disclosure Construct:** Observed self-disclosure captures a valid process that displays a degree of stability over time and is observable by others.
2. **Short-Term Adjustments in Disclosure.** Participant and best friend self-disclosure will be correlated such that more disclosing by one interaction partner is correlated with more disclosing by the other interaction partner in the same conversation. In a second conversation (Task 2) immediately following the first (Task 1), best friends will "adjust" their levels of disclosure to more closely match the levels of disclosure demonstrated by the participant in the first conversation.
3. **Tracking Co-Development of Self-Disclosure:** Higher levels of self-disclosure by one member of the dyad in a given year will predict increases in self-disclosure the following year. This trajectory of iteratively increasing self-disclosure will cascade into adulthood, such that individuals with highly disclosing friendship partners in adolescence will be relationships with highly disclosing romantic partners in adulthood.
4. **Linking Self-Disclosure and Mental Health Across Time:** Predictions between self-disclosure and mental health will be identified across adolescence, such that engaging in more self-disclosure each year will be associated with decreases in internalizing symptoms the following year. Furthermore, individuals who disclose more in adolescence will also engage in relatively higher

amounts of disclosure in adulthood and disclosing more in adolescence will be associated with reduced internalizing symptoms in adulthood.

5. **Linking Self-Disclosure and Relational Functioning Across Time:** Reciprocal predictions between self-disclosure and relationship quality will be identified across adolescence, such that adolescents in high-quality relationships engage in more self-disclosure, and that each predicts increases in the other across adolescence. Furthermore, individuals who disclose more in adolescence will also engage in relatively higher amounts of disclosure in adulthood and will be in higher-quality romantic relationships in adulthood.
6. **Low-Disclosers and Long-Term Functioning:** The subset of adolescents who consistently disclose at relatively low amounts across adolescence will disclose less in adulthood and will endorse lower-quality relationships and higher amounts of internalizing symptoms in adulthood. They will be a distinct group such that these effects will exist over-and-above the simple linear effects of disclosure levels.
7. **Role of Context:** The benefits of self-disclosure will be most pronounced for individuals who are in higher-quality baseline relationships, in lower-risk neighborhoods in adolescence, in friendships characterized by high disclosure from the close friend, and who are relatively low in OXTR methylation.

Method

Participants

This study will be part of a longitudinal investigation of social development across adolescence and young adulthood. Participants included 184 seventh- and eighth-graders (86 boys and 98 girls). Participants were assessed annually; this study utilizes the age 13 (M_{age} = 13.35, *SD* = .64) through age 18 (M_{age} = 18.38, *SD* = 1.04) assessments with friends as well as the age 18 (M_{age} = 18.43, *SD* = 1.00) and age

24 (M_{age} = 23.99, *SD* = 1.12) assessments with romantic partners (see Table 1 for participant, close peer, and romantic partner age information by assessment time point).

Table 1. Ages by Assessment Time Point (in years)

	Participant Ages		Close Peer Ages		Romantic Partner Ages	
Assessment	Mean	*SD*	Mean	*SD*	Mean	*SD*
Time 1	13.35	.64	13.46	0.83	-	-
Time 2	14.27	.77	14.45	0.87	-	-
Time 3	15.21	.81	15.03	0.97	-	-
Time 4	16.50	.97	16.05	1.13	-	-
Time 5	17.32	.88	16.91	1.42	-	-
Time 6	18.38	1.04	18.47	1.86	-	-
Time 7	19.66	1.07	-	-	20.34	3.39
Time 8	20.84	.98	-	-	-	-
Time 9	21.68	.95	-	-	-	-
Time 10	22.80	.96	-	-	23.35	3.40
Time 11	23.78	.97	-	-	-	-
Time 12	24.65	.96	-	-	-	-
Time 13	25.69	.99	-	-	26.71	3.24
Time 14	26.63	1.01	-	-	-	-
Time 15	27.67	.99	-	-	-	-
Time 16	28.59	1.02	-	-	27.98	3.84

Participants were originally recruited from the seventh and eighth grades of a public middle school drawing from suburban and urban populations in the Southeastern United States in 1998. Students were recruited via an initial mailing to all parents of students in the school along with follow-up contact efforts at school lunches. Families of adolescents who indicated interest in the study were contacted by telephone. Of all students eligible for participation, 63% agreed to participate either as target participants or as friends who participated in interactions tasks with the target teen. Once a student participated as a friend, they were no longer eligible to be a primary participant. The sample was racially and socioeconomically diverse: 107 adolescents (58%) identified themselves as White, 53 (29%) as Black, 15 (8%) as Multiracial, and 9 (5%) as being from other identity groups, which approximately mirrors the distribution of the catchment area for the school from which the sample was drawn. Adolescents' parents reported an annual median family income in the $40,000–$59,999 range,

relative to a national median household income of approximately $39,000 at the time (US Census Bureau, 1999).

Each year, target adolescents nominated their closest friend to be included in survey and observational measures with them in the study. The same peer participated in subsequent years, on average, 42.3% of the time (min = 35.9%, max 45.5%). All best friend dyads identified as same-gender, although this was not a requirement to participate in the study. Across pairs of subsequent study assessment time points, the same close peer participated for a target participant 35.9% - 44.4% of the time (see Table 2).

Table 2. Stability and Instability of Close Peers in Study

	Number of Close Peers	
Assessments	Participated in Both Assessments	Did Not Participate in Both Assessments
Age 13 – Age 14	60 (35.9%)	107 (64.1%)
Age 14 – Age 15	70 (45.5%)	84 (54.5%)
Age 15 – Age 16	63 (43.2%)	83 (56.8%)
Age 16 – Age 17	67 (44.4%)	84 (55.6%)
Age 17 – Age 18	49 (42.6%)	66 (57.4%)

In adulthood, participants' romantic partners were invited to participate in survey and observational measures every three years, after reporting a relationship of at least three months in duration (See Table 3 for summary of relationship durations by time point).

Table 3. Relationship Durations by Assessment Time Point

M Participant Age	M Relationship Duration	*SD* Relationship Duration
19.66 years	1.18 years	*1.26 years*
22.80 years	1.82 years	*1.66 years*
25.69 years	2.72 years	*2.37 years*
28.59 years	4.04 years	*3.29 years*

All participating couples identified as heterosexual, although this was not a requirement to participate in the study. The same romantic partner participated for a target participant 22.05% - 50.39% of the time (see Table 4).

Table 4. Stability and Instability of Romantic Partners in Study

	Number of Romantic Partners	
Assessments	**Participated in Both Assessments**	**Did Not Participate in Both Assessments**
Age 20 – 23	28 (22.05%)	99 (77.95%)
Age 23 – 26	42 (33.07%)	85 (66.93%)
Age 26 – 29	64 (50.39%)	63 (49.6%)

Procedures

In the initial introduction and throughout each session, confidentiality was explained to all participants, and adolescents were told that their parents would not be informed of any of the answers they provided. A Confidentiality Certificate issued by the U.S. Department of Health and Human Services protected all data from subpoena by federal, state, and local courts.

Attrition Analysis

On average, individuals participated at 6.34 of the 7 study time points (*SD* = 1.16). Attrition at each study time point was also low, with participation rates of: 89% at age 14, 88% at age 15, 88% at age 16, 90% at age 17, and 74% at age 18 (relative to baseline age 13 participation). Of the 184 teens who participated at age 13, 94% also participated in adulthood. Individuals who completely dropped out of the study (participated at age 13 but did not participate in adulthood) did not differ from teens who remained in the study on any baseline measures (friendship quality, depressive symptoms, or disclosure), gender, or familial income. Nevertheless, to best address any possible biases due to attrition in longitudinal analyses or missing data within waves, full-information maximum-likelihood methods will be used for all analyses. These methods have been found to yield the least-biased estimates when all available data are used for longitudinal analyses (vs. listwise deletion of missing data; Arbuckle, 1996); thus, the entire original sample of 184 will be used for these analyses. The full sample provides the best possible estimates of variances and covariances in measures of interest and is least likely to be biased by missing data.

Measures

See Table 5, below, for a summary of all proposed measures:

Table 5. Summary of Measures by Construct

Construct	Measure Type	Instrument	Ages
Self-Disclosure:			
• Self-Disclosure in Support-Seeking and Support-Providing Interactions	Observational	Supportive Behavior Task	13-29
• Interpersonal Competence (Broadly, Comfort with Disclosure)	Peer-Report	Interpersonal Competency Questionnaire (ICQ)	13-18
Internalizing Symptoms:			
• Depressive Symptoms	Self-Report	Childhood Depression Inventory (CDI)	13-17
		Beck Depression Inventory (BDI)	18, 23-29
• Anxious Symptoms	Self-Report	Beck Anxiety Inventory (BAI)	15-18
		State/Trait Anxiety Inventory (STAI)	20-29
Relational Functioning:			
• Friendship Quality	Self-Report	Friendship Quality Questionnaire (FQQ)	13-18
• Romantic Relationship Status	Self-Report	Directly Reported	24
• Romantic Relationship Quality (Satisfaction, Supportiveness)	Self-Report	Network of Relationships Inventory (NRI)	24
Covariates:			
• Gender	Self-Report	Directly Reported	13
• Socioeconomic Status	Self-Report	Directly Reported	13
Contextual Factors:			
• Racial Identity	Self-Report	Directly Reported	13
• Conversational Support Behaviors	Observed	Supportive Behavior Task	13-18
• Friendship Stability	Observed	Participation Rates	13-18
• OXTR Methylation	Blood Assay	OXTR site -860, -924, -934	28
• Neighborhood Characteristics (Crime, Risk, Cohesion, Connection)	Parent-Report	Neighborhood Quality Questionnaire (NQQ)	13

Self-Disclosure.

Self-Disclosure in Help-Seeking Interactions. *(Age 13-18 with Close Peers; Age 19-29 with Romantic Partners).* Target teens and their nominated close friends participated in an observed social interaction task in private offices within a university building annually from age 13 to 18. Target teens participated in the same task with their romantic partners again at age 24. In the six-minute task, participants asked their interaction partners for advice on a self-selected topic, to approximate natural social support processes. This interaction was then coded for the level of Self-Disclosure made by the

participant and their interaction partner, using the Supportive Behavior Task Coding System for Adolescent Peer Dyads (Allen et al., 2001; See Appendix I for Task Description).

The Self-Disclosure code describes the level to which the teen shares information about themselves, particularly private information that would make the other person in the interaction feel as though they know the speaker better. In this coding system, a single statement that contains the highest level of self-disclosure within the interaction is scored. Scores are generated based on a combination of the intensity of affect, level of vulnerability displayed, how controversial the statement might be; and are overall intended to capture how embarrassed or uncomfortable the *typical* person might feel disclosing the information that is stated, regardless of how the teen appears to feel about it in the moment. Scores range from 0 = *brief or non-controversial likes and dislikes or wants and needs are expressed; teens are talking about their day in a way that doesn't capture much personal or vulnerable information*, to 4=*conversation contains content not commonly shared between somewhat close friends; teens expressed strong feelings that are less socially acceptable, such as sadness, fear, loneliness, or anxiety* (see Appendix II for full description of codes). Intraclass Correlations, which measure inter-rater reliability, ranged from .69-.75, falling in the good- to excellent-range for this statistic (Cicchetti & Sparrow, 1981).

Interpersonal Competency. *(Age 13-18).* The Interpersonal Competency Questionnaire (Buhrmester, 1990) was annually administered to the target teen's nominated closest friend, to assess that friend's perception of the target teen's interpersonal abilities. Item stems were phrased such that friends were responding to items that directly described the interpersonal competencies of the target participant. Friends responded to eight questions designed to assess the extent to which the best friend perceived the target participant as comfortable with self-disclosure. Questions included items such as "How good is [participant] at…" "…telling someone what they personally think about important things?" and "…sharing personal thoughts and feelings?" Best friends responded to these questions on a scale

from 1 = *Poor at this* (defined for participants as "they would be so uncomfortable and unable to handle this situation that it would be avoided if at all possible") to 5 = *Extremely good at this* (defined as "they would feel very comfortable and could handle this situation well"). The eight items were summed together to obtain the Self-Disclosure subscale.

Additionally, an overall Interpersonal Competence score is obtained by summing participants' scores on 40 items that assess social capacities across five domains: initiating relationships, self-disclosing, asserting influence, providing emotional support, and managing conflict (see Appendix III for full measure). Interpersonal competency scores have previously been found to be related to sociability, self-esteem, and reduced anxiety and depression, but are discrete from perceived intimacy in the relationship (Buhrmester, 1990). Internal consistency on the self-disclosure subscale and total interpersonal competence scale for this sample were excellent (Cronbach's α's = .86-.90; Cicchetti & Sparrow, 1981).

Mental Health.

Depressive Symptoms. *(Age 13-18, 20-29).* Participants reported the degree of their depressive symptoms using the Childhood Depression Inventory from ages 13-17 (CDI; Kovacs & Beck, 1992) and the Beck Depression Inventory at ages 18-25 (BDI; Beck & Steer, 1987). The CDI is a 27-item inventory of depression in childhood and adolescence based on the BDI. The BDI contains 20 items that are summed to generate a total score for depressive symptoms. For each item, participants selected from four statements about themselves, which are coded on a scale of 1 to 4, for example: 1= *I do not feel sad,* 2 = *I feel sad,* 3 = *I am sad all the time and can't snap out of it,* and 4 = *I am so sad or unhappy that I can't stand it* (see Appendix IV for full copy of CDI measure and Appendix V for full copy of BDI measure administered). In these measures, depression is measured along a continuum, in recognition that higher levels of depressive symptoms may still be important in predicting concurrent and subsequent dysfunction, even if they do not meet clinical threshold (Lewinsohn et al., 2000). The CDI and BDI are

some of the most widely used instruments for assessing levels of depression and have demonstrated reliability and concurrent validity for the respective age targets (Steer et al., 1985; Jolly et al., 1994). The measures have excellent internal consistency in this sample (Cronbach's α's = .85-.88).

Anxious Symptoms. *(Age 16-18, 20-29).* Adolescents also completed the Beck Anxiety Inventory at ages 16, 17, and 18 (BAI; Beck et al. 1988) and the trait subscale of the State-Trait Anxiety Inventory at ages 20-29 (STAI; Speilberger et al., 1970). In adolescence, participants responded to the BAI by indicating how often they experienced 21 anxiety symptoms, for example, "dizzy or lightheaded," "terrified or afraid," and "fear of losing control". Responses are coded on a 4-point Likert scale where 1 = *Not at all,* 2 = *Mildly but it didn't bother me much,* 3 = *Moderately – it wasn't pleasant at times,* and 4 = *Severely – it bothered me a lot* (see Appendix VI for full BAI measure administered). Responses are summed to provide a total anxiety score. The BAI has shown high internal consistency, convergent and discriminant validity, and test-retest reliability and has strong support for use in an adolescent outpatient sample (Beck et al. 1988; Fydrich et al. 1992). The measure has excellent internal consistency in this sample (Cronbach's α's = .88-90).

In adulthood, participants responded to the trait subscale of the STAI. The trait subscale consists of 20 items, scored on a 4-point Likert scale where 1 = *almost never*, 2 = *sometimes*, 3 = *often*, and 4 = *almost always.* Items assess overall stable individual differences in anxiety, for example, "I worry too much over something that doesn't really matter" (see Appendix VII for full STAI measure administered). The STAI has demonstrated high validity and reliability, with multiple samples and alternative measures of anxiety (Cattell & Scheier, 1963; Spielberger et al., 1970). The measure has excellent internal consistency in this sample (Cronbach's α's = .91-.93).

Relationship Quality.

Friendship Quality. *(Age 13-18).* Participants reported on the quality of their friendships by responding to the 40-item Friendship Quality Questionnaire annually from ages 13 to 18 (FQQ; Parker et

al., 1993). The FQQ consists of items categorized into six subscales: validation and caring, conflict resolution, conflict and betrayal, help and guidance, companionship and recreation, and intimate exchange; and include statements such as "[Friend] cares about my feelings" and "We always tell each other our problems." Participants respond to a total of 40 items on a Likert-type scale where 1 = *Not at all True,* 2 = *A Little True,* 3 = *Somewhat True,* 4 = *Pretty True,* and 5 = *Really True* (see Appendix VIII for full FQQ measure administered). Composite scores were created from the sum of all items, with negatively phrased items reverse-scored such that higher scores indicate greater friendship quality. The internal consistency for friendship quality in this sample is considered excellent (Cronbach's αs = .95 - .96).

Relationship Status. *(Age 20-29).* Participants reported on whether they were in a relationship at least 3 months in duration, annually, from age 20 to 29. Responses were coded as *yes* = 1 and *no* = 0. The first time participants indicated that they were in such a relationship, they were invited to participate in observational tasks and questionnaire measures with their romantic partner.

Romantic Relationship Quality: Satisfaction and Supportiveness. *(Age 20-29).* Once every three years from age 20-29, participants completed the Network of Relationships Inventory (Furman, 1998; Furman & Buhrmester, 1985) about their current romantic relationship. This measure includes two three-item subscales that assess supportiveness in the relationship (for example, "When you are feeling down or upset, how often do you depend on this person to cheer you up?") and level of satisfaction in the relationship (for example, "How happy are you with the way things are between you and this person?"). Items are scored on a scale where 1 = *Little or None,* 2 = *Somewhat,* 3 = *Very Much,* 4 = *Extremely Much,* and 5 = *The Most* (see Appendix IX for full NRI measure administered). These subscales demonstrated good to excellent internal consistency (Cronbach's αs = .85-.97).

Covariates.

Demographic Information. Participants reported on their gender and racial identities at start of the study. Participants' parents reported on the estimated household income.

Context.

Best Friend Supportive Behaviors: Engagement, Emotional Support Provided, and Valuing. *(Age 13-18).* As discussed above, participants and their best friends participated in a six-minute, observed support-seeking interaction (see *Self-Disclosure* variable description). This interaction was then coded for the level of Self-Disclosure made by the teen, using the Supportive Behavior Task Coding System for Adolescent Peer Dyads (Allen et al., 2001).

The Engagement code describes the level to which the friend appears to be connected, paying close attention, interested, and demonstrating genuine listening to the participant in their support-seeking interaction. Scores are generated based on a combination of the amount and quality of engagement across the entire six-minute interaction. Scores range from 0 = *supporter shows no or few signs of interest in what participant is saying, and both verbal and nonverbal indicators of attention and responsiveness are minimal*, to 4 = *verbal and non-verbal behavior are mostly consistent with each other and an attitude of connectedness (facing each other, good eye contact, verbal follow-up)* (see Appendix X for full Engagement code description). Inter-rater reliability ranged from adequate to excellent for this sample (ICCs = .47-.74).

The Emotional Support code focuses on support that attempts to understand and validate, understand, name, or elicit the feelings demonstrated by the support-seeker. Scores are generated based on how much the best friend is aware of the participant's emotions, tries to find out more about them, and then provide support for those feelings. Scores range from 0 = *no attempt to emotionally support the participant (may ignore, belittle, or have no emotional content in the interaction)*, to 4 = *the best friend clearly recognizes the participant's emotional distress and makes clear attempts to draw*

them out and offer warmth, concern, and sympathy (see Appendix XI for full Emotional Support Provided code description). Inter-rater reliability ranged from good to excellent for this sample (ICCs = .69-.81)

The Valuing code describes the level to which the friend appears to be connected, paying close attention, interested, and demonstrating genuine listening to the participant in their support-seeking interaction. Scores are generated based on a combination of the amount and quality of engagement across the entire six-minute interaction. Scores range from 0 = *supporter shows no or few signs of interest in what participant is saying, and both verbal and nonverbal indicators of attention and responsiveness are minimal*, to 4 = *verbal and non-verbal behavior are mostly consistent with each other and an attitude of connectedness (facing each other, good eye contact, verbal follow-up)* (see Appendix XII for full Valuing code description). Inter-rater reliability ranged from good to excellent for this sample (ICCs = .62-.73).

OXTR Methylation. *(Age 28).* Blood Collection, DNA Isolation, and DNA Methylation Analysis (Age 28) One hundred twelve participants consented to a blood draw between ages 26 and 32, and venipuncture was performed. For each participant, 8.5 milliliters of whole blood were drawn into a PAXgene Blood DNA Tube (PreAnalytiX, Hombrechtikon, Switzerland) and held at -20°C for short-term storage (< 3 months) and at -80°C for long-term storage. Following manufacturer instructions, the PAXgene Blood DNA kit (PreAnalytiX, Hombrechtikon, Switzerland) was used to extract DNA. Two hundred nanograms of DNA isolated from whole blood were subjected to bisulfite conversion using MECOV50 Kits (Invitrogen, Carlsbad, CA), which allows for the differentiation of methylated and unmethylated cytosines in the DNA sequence. Samples were eluted in 10 microliters. Following bisulfite conversion, procedures were conducted in triplicate. Two microliters of bisulfite-converted DNA were amplified via polymerase chain reaction (PCR) using a Pyromark PCR kit (QIAGEN, Hilden, Germany) and 0.2 μM primers [TSL101F, 5'- TTGAGTTTTGGATTTAGATAATTAAGGATT-3' (forward); TSL101R, 5'-biotinAATAAAATACCTCCCACTCCTTATTCCTAA-3' (reverse)]. Each PCR plate contained methylation

standards (0, 50, and 100% methylated) and negative (no DNA) controls from bisulfite conversion and PCR. Thermocycling was conducted as follows: Step 1, 95°C for 15 minutes; Step 2, 50 cycles at 94°C for 30 seconds, 56°C for 30 seconds, and 72°C for 30 seconds; Step 3, 72°C for 10 minutes; and Step 4, held at 4°C until analysis. The primers used amplify a 116-base pair region on the coding strand of OXTR containing CpG site -924 (Genome Reference Consortium Human Build 38, chromosome 3: 8,769,044 to 8,769,159), which was confirmed by agarose gel electrophoresis on a representative of the sample and replicates. Samples were randomized for pyrosequencing to account for plate and run variability. DNA methylation level for each sample was assessed using pyrosequencing, using sequencing primer TSL101S, 5'-AGAAGTTATTTTATAATTTTT-3' (PyroMark Q24, QIAGEN). Epigenotypes reported are an average of the three replicate values. On average, methylation levels within replicates deviated from the mean by ±1.86%.

Neighborhood Characteristics. *(Age 13).* The Neighborhood Quality Questionnaire is a 22-item composite of three scales each assessing different aspects of neighborhood-quality (Buckner, 1988; Gonzales, Cauce, Friedman, & Mason, 1996). The scale assesses neighborhood connectedness (e.g., "I believe my neighbors would help me in an emergency;" six items), neighborhood crime and deterioration (e.g., "In the past two years things in my neighborhood have gotten worse;" four items), and neighborhood risk (e.g., "violent crimes that involve weapons occur in my neighborhood;" 12 items) as reported by the participant's mother or father when the mother was unavailable (see Appendix XIII for full NQQ measure administered). Higher scores indicated greater connectedness, crime, and risk respectively. Internal consistency in this sample was good to excellent (Cronbach's α's = .76-.93).

Analytic Plan

Exploratory Descriptive Analysis of Support Topics in Adolescence. To better understand the conversational context in which disclosure occurs, exploratory descriptive analyses of adolescents' support-seeking statements in the Supportive Behavior Task will be employed. The first 30 seconds of

each video-taped interaction will be transcribed. Support topic themes will be generated to capture themes in teens' selected support-seeking topics, in order to better understand patterns between topics selected and amounts of disclosure, as well as patterns of change in topic foci across adolescence.

Summary of Primary Quantitative Analytic Plan. Primary analyses were all performed using *R* package *lavaan* (Rosseel, 2012), and control for gender and income where possible. See Table 6, below, for a summary of preliminary and primary analyses performed in this study. Detailed descriptions of analyses can be found alongside relevant results.

Table 6. Summary of Analyses

Preliminary Analyses	
Exploratory Description of Disclosure Topics	Themes of support-seeking conversations were generated based on the first 30 seconds of participants' support-seeking interactions.
Self-Disclosure and Identity Characteristics	• Correlation and t-test comparison of self-disclosure each year in adolescence by gender. • Correlation and t-test comparison of self-disclosure each year in adolescence by minoritized racial identity. • ANOVA comparison of self-disclosure each year in adolescence by racial identity. • Correlation of self-disclosure each year in adolescence and family income.
Primary Analyses	
Hypothesis 1. Characterizing the Self-Disclosure Construct in Adolescence	• Correlations of concurrent self-disclosure between participants and best friends • Correlations of participants' self-disclosure and best friends' perceptions of their comfort with disclosure and interpersonal competence
Hypothesis 2. Short-Term Adjustments in Disclosure within Adolescence	• Correlations of concurrent self-disclosure between participants and best friends in two different advice-seeking tasks (participant-seeking and friend-seeking) • A series of 7 regression models (one for each year age 13 to 18 and one of the mean), predicting change friend's disclosure in Task 2 from the participant's level of disclosure in Task 1 • Cross-Lagged Panel Model tracking change within-year and across adolescence in participants' and friends' levels of self-disclosure
Hypothesis 3. Tracking Co-Development of Self-Disclosure	**In Adolescence:** • Random Intercept Cross-Lagged Panel Model of participant's and friend's self-disclosure when participant seeks support

	• Random Intercept Cross-Lagged Panel Model of participant's and friend's self-disclosure when friend seeks support • Random Intercept Cross-Lagged Panel Model of participant's and friend's self-disclosure when each seeks support **Long-term:** • Correlations of mean disclosure between participants, adolescent best friends, and adult romantic partners • Regression predicting participant disclosure in adulthood from disclosing behaviors in adolescence
Hypothesis 4. Linking Self-Disclosure and Mental Health Across Time	**In Adolescence:** • Correlations of self-disclosure and concurrent depressive and anxious symptoms from age 13 to 18. • Random Intercept Cross-Lagged Panel Model of participants' self-disclosure and depressive symptoms from age 13 to 18 • Random Intercept Cross-Lagged Panel Model of participants' self-disclosure and anxious symptoms from age 13 to 18 **Long-term:** • Correlations among mean self-disclosure, depressive symptoms, and anxious symptoms in adolescence and adulthood. • Cross-Lagged Panel model of mean self-disclosure and depressive symptom levels in adolescence to mean self-disclosure and depressive symptom levels in adulthood. • Cross-Lagged Panel model of mean self-disclosure and anxious symptom levels in adolescence to mean self-disclosure and anxious symptom levels in adulthood.
Hypothesis 5. Linking Self-Disclosure and Relational Functioning Across Time	**In Adolescence:** • Random Intercept Cross-Lagged Panel Model of participants' self-disclosure and friendship quality from age 13 to 18 • Random Intercept Cross-Lagged Panel Model of participants' self-disclosure and broad peer relationship quality from age 13 to 18 **Long-term:** • Correlations from mean adolescent levels of self-disclosure and future relationship status • Correlations among self-disclosure behaviors in adolescence and relationship quality in adulthood • Regression analyses predicting changes in self-disclosure from adolescence to adulthood based on relationship quality • Regression analyses predicting changes in relationship quality from adolescence to adulthood based on adolescent self-disclosure • Cross-Lagged Panel model of mean self-disclosure and relationship quality in adolescence to mean self-disclosure and relationship satisfaction in adulthood

	• Cross-Lagged Panel model of mean self-disclosure and relationship quality in adolescence to mean self-disclosure and relationship supportiveness in adulthood
Hypothesis 6. Low-Disclosers and Long-Term Functioning	• Correlational and comparative testing by demographic characteristics of likelihood to disclose in the bottom quartile of the sample • Regression analyses comparing predictive value of categorizing "low disclosing" vs. treating disclosure as a continuous variable
Hypothesis 7. Role of Context	• Correlations of best friends' supportive behaviors (engagement, emotional support provision, and valuing) and participants' levels of self-disclosure • Correlations of self-disclosure and identity variables (gender, family income, neighborhood characteristics, racial identity, minoritized racial identity status, and OXTR methylation at sites -860, -924) • Analyses of quadratic associations between self-disclosure and identity variables • Moderation analyses of identity variables

Results

Descriptive Statistics

See Tables 7-11 for information about means and standard deviations for survey, observational, and blood assay data, respectively. See Figure 1 for a descriptive plot of target participant self-disclosures in help-seeking interactions.

Table 7. Survey Data Descriptive Information: Best Friend Visits

	Depressive Symptoms (self-report)		Anxious Symptoms (self-report)		Relationship Quality (self-report)		Interpersonal Competence (best friend rpt)		Comfort with Disclosure (best fried rpt)	
	M	*SD*	M	*SD*	M	*SD*	M	*SD*	M	*SD*
Age 13	5.07	*4.30*	-	-	102.21	*13.93*	134.67	*26.09*	25.17	*6.39*
Age 14	5.59	*5.27*	-	-	103.26	*12.98*	131.23	*26.23*	24.82	*6.44*
Age 15	6.75	*6.42*	6.63	*8.03*	101.91	*14.50*	135.23	*26.63*	26.63	*6.13*
Age 16	7.17	*6.10*	6.94	*7.81*	103.82	*13.44*	135.52	*30.23*	26.13	*6.81*
Age 17	6.50	*5.41*	5.65	*8.37*	106.76	*14.24*	141.67	*25.21*	26.93	*6.40*
Age 18	5.03	*6.08*	-	-	106.50	*13.96*	141.16	*24.92*	26.85	*6.04*

Note: Adolescent anxious symptoms were only collected at Age 15-17

Table 8. Survey Data Descriptive Information: Romantic Partner Visits

Variable	Depressive Symptoms (self-report)		Anxious Symptoms (self-report)		Relationship Satisfaction (self-report)		Relationship Supportiveness (self-report)		Participants in Relationship
	M	*SD*	M	*SD*	M	*SD*	M	*SD*	*N*
Age 20	4.75	*4.75*	35.34	*9.09*	12.98	*2.53*	12.68	*2.65*	74
Age 21	5.22	*5.22*	36.81	*9.79*	.	.	.	.	85
Age 22	5.46	*5.46*	37.54	*9.99*	.	.	.	.	85
Age 23	4.97	*4.97*	36.45	*9.45*	12.71	*2.52*	12.47	*2.79*	92
Age 24	5.33	*5.34*	36.95	*9.56*	.	.	.	.	92
Age 25	4.82	*4.82*	36.62	*10.11*	.	.	.	.	92
Age 26	5.53	*5.53*	35.81	*9.89*	13.05	*2.33*	12.82	*2.14*	96
Age 27	5.83	*5.83*	34.67	*10.67*	.	.	.	.	90
Age 28	4.56	*4.56*	33.25	*9.77*	.	.	.	.	96
Age 29	5.08	*5.08*	34.03	*9.81*	13.34	*2.32*	12.76	*2.80*	110

Note: Romantic Partner-related measures were collected once every three years from participants in committed relationships of at least 3 months' duration

Table 9. Observational Data Descriptive Information: Best Friend Visits

	Participant Seeking Support										Best Friend Seeking Support			
	Self-Disclosure (participant)		Self-Disclosure (best friend)		Engagement (best friend)		Emotional Support Provided (best friend)		Valuing (best friend)		Self-Disclosure (best friend)		Self-Disclosure (participant)	
	M	*SD*	M	*SD*	M	*SD*	M	*SD*	M	*SD*	M	*SD*	M	*SD*
Age 13	1.46	*0.97*	0.89	*0.81*	2.53	*.79*	1.07	*1.04*	2.03	*.91*	1.04	*.99*	1.9	*.68*
Age 14	1.37	*0.89*	0.76	*0.68*	2.51	*.69*	.89	*.91*	1.70	*.81*	1.05	*1.02*	.55	*.82*
Age 15	1.23	*0.89*	0.72	*0.74*	2.50	*.63*	1.05	*.98*	1.94	*.82*	.56	*.72*	.18	*.45*
Age 16	1.16	*0.95*	0.48	*0.66*	2.70	*.70*	1.13	*1.00*	2.04	*.73*	.78	*.82*	.29	*.48*
Age 17	0.79	*0.87*	0.43	*0.59*	2.88	*.61*	.67	*.87*	2.01	*.65*	.55	*.77*	.14	*.44*
Age 18	0.67	*0.77*	0.25	*0.49*	2.77	*.75*	1.13	*.80*	1.86	*.60*	.72	*.80*	.22	*.44*

Table 10. Observational Data Descriptive Information: Romantic Partner Visit, Participant Seeking Support

	Self-Disclosure (participant)		Self-Disclosure (romantic partner)	
	M	*SD*	M	*SD*
Age 20	.64	*.87*	.38	*.61*
Age 23	.63	*.76*	.24	*.46*
Age 26	.45	*.53*	.18	*.38*
Age 29	.53	*.57*	.20	*.46*

Note: Romantic partner seeking support interactions have not been coded and are not included in analyses

Table 11. OXTRm By Site

-860		-924		-934	
M	*SD*	M	*SD*	M	*SD*
25.49	*6.86*	62.09	*6.39*	44.49	*6.18*

To further characterize self-disclosure by participants across the course of the study, plots of individuals' trajectories in displayed disclosure when seeking support from age 13 to 18 were plotted (see Figure 1). Visually, we see clear variation across years for individual participants, as well as significant spread around the sample mean of self-disclosure each year.

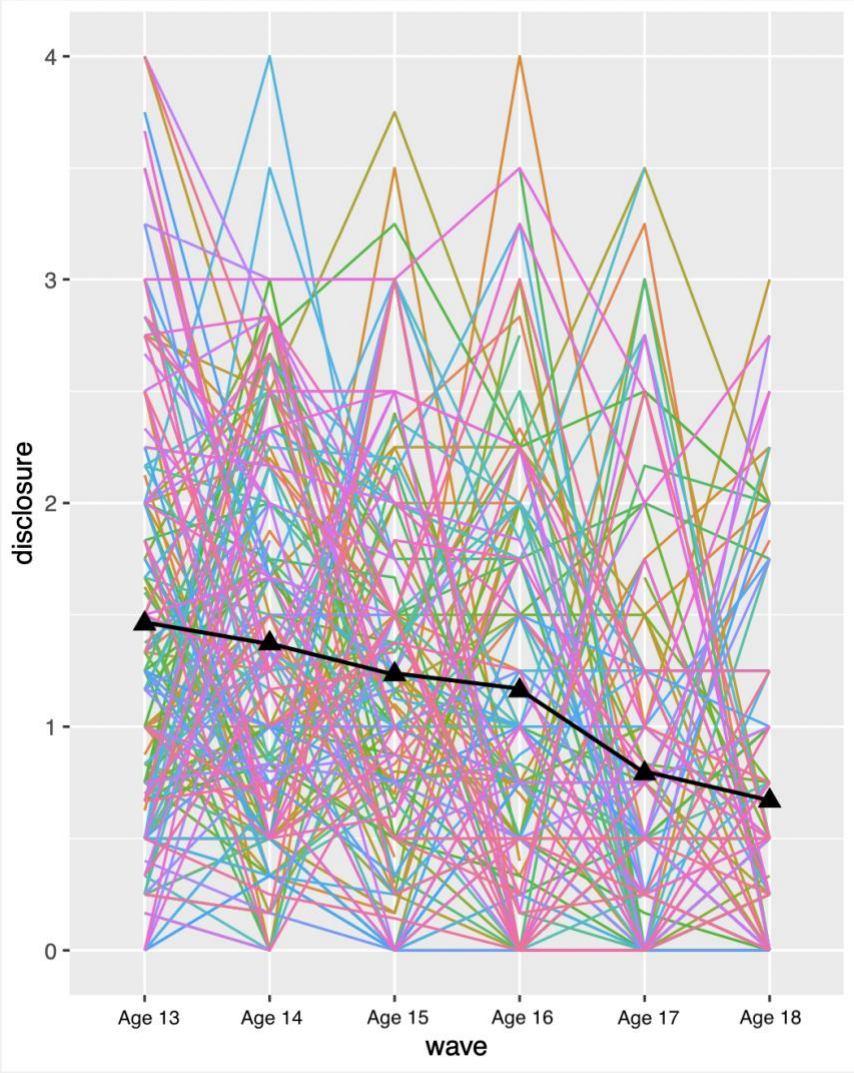

Figure 1. Disclosure in Adolescence. Coded observed self-disclosure by the target participant in a help-seeking task with their nominated close peer across adolescence. Each line represents a participant's trajectory. Black line indicates sample mean at each time point.

Exploratory Description of Disclosure Topics

To better understand the topical context in which disclosure occurs, exploratory descriptive analyses of adolescents' support-seeking statements in the Supportive Behavior Task were employed. The first 30 seconds of each video-recorded interaction were transcribed. Summary statements of each support topic were generated based on the 30-second transcription (e.g., *"Participant requests support on how to manage a fight between two other friends that the supportive peer knows well."*). Summary statements were then reviewed, and support topic themes were generated to capture similar themes across participants' selected support-seeking topics (e.g., *"Peer Conflict,"* for the example above). See Table 12 for a summary of broad topic discussions across the study timespan.

Table 12. Participant-Selected Advice Topics

Topic	Age 13	Age 14	Age 15	Age 16	Age 17	Age 18
Academic/Teacher Concern	24	26	15	14	9	1
	(14.2%)	*(17.3%)*	*(11.7%)*	*(10.2%)*	*(6.4%)*	*(0.8%)*
Dating/Romantic Interests	27	34	26	31	27	30
	(16.1%)	*(22.7%)*	*(20.3%)*	*(22.6%)*	*(19.3%)*	*(23.6%)*
Future Planning	3	3	4	15	43	40
	(1.6%)	*(2.0%)*	*(3.1%)*	*(10.9%)*	*(30.7%)*	*(31.5%)*
Health	3	-	2	-	2	1
	(1.6%)		*(1.6%)*		*(1.4%)*	*(0.8%)*
Money/Jobs	14	16	13	11	15	16
	(8.3%)	*(10.7%)*	*(10.2%)*	*(8.0%)*	*(10.7%)*	*(12.6%)*
Other	3	1	-	-	-	-
	(1.6%)	*(0.7%)*				
Parents/Parent Conflict	11	8	2	6	3	2
	(6.5%)	*(5.3%)*	*(1.6%)*	*(4.9%)*	*(2.1%)*	*(1.6%)*
Peers/Peer Conflict	37	37	36	21	19	26
	(22.0%)	*(24.7%)*	*(28.1%)*	*(15.3%)*	*(13.6%)*	*(20.4%)*
Siblings/Sibling Conflict	9	4	10	4	2	-
	(5.4%)	*(2.7%)*	*(7.8%)*	*(2.9%)*	*(1.4%)*	
Sports/Interests/Activities	37	21	20	35	20	11
	(22.0%)	*(14.0%)*	*(15.6%)*	*(25.5%)*	*(14.3%)*	*(8.7%)*

Note: Percentages may not add to 100 due to rounding.

Common themes each year included peer conflict, academic concerns, advice-seeking regarding money, and questions regarding sports and other extra-curricular activities. The major foci of

conversations seemed to shift across development. For example, "Future Planning" discussions, conversations in which teens discussed planning for after high school (where to live, attending college, moving in with a partner, having children) increased across the study time span. Similarly, conversations about problems that intuitively link more closely to early adolescence (conflict with parents, joining sports teams, and concerns about academic scheduling or teacher conflict) seemed to decrease across development. Socially-oriented topics appeared to remain salient throughout development, with a major proportion of participants seeking support from peers about peer challenges and romantic interests each year throughout high school.

Self-Disclosure and Identity Characteristics in this Sample

Additional preliminary analyses explored levels of self-disclosure in this sample based on participants' gender, racial minoritized status, and racial identity (see Tables 13-16). By breaking down the sample in this way, significant differences in self-disclosure by gender arise, such that girls tend to disclose more than boys at ages 14-16. There are no significant differences in participants' self-disclosure by minoritized racial identity status.

Table 13. Mean Self-Disclosure in Adolescence by Gender

	M_{Boys} *(SD)*	M_{Girls} *(SD)*	Group Difference (*p*)
Age 13	1.32 *(.93)*	1.58 *(1.01)*	.08
Age 14	1.16 *(.97)*	1.56 *(1.40)*	.01*
Age 15	.95 *(.75)*	1.50 *(1.31)*	<.001**
Age 16	.90 *(.86)*	1.39 *(.98)*	.002*
Age 17	.75 *(.82)*	.86 *(.91)*	.29
Age 18	.54 *(.71)*	.78 *(.83)*	.08

*Note: *p < .05, **p <.01, ***p < .001*

Table 14. Mean Self-Disclosure in Adolescence by Minoritized Racial Identity

	$M_{Minoritized}$ *(SD)*	M_{White} *(SD)*	Group Difference (*p*)
Age 13	1.43 *(1.2)*	1.48 *(1.29)*	.70
Age 14	1.25 *(.84)*	1.44 *(.91)*	.19
Age 15	1.14 *(1.29)*	1.29 *(.91)*	.34
Age 16	1.16 *(.97)*	1.16 *(.94)*	.98
Age 17	.67 *(.76)*	.87 *(.93)*	.18
Age 18	.64 *(.80)*	.69 *(.77)*	.70

*Note: *p < .05, **p <.01, ***p < .001*

Table 15. Mean Self-Disclosure in Adolescence by Racial Identity

	Asian	Black	Hispanic	White	American Indian	Mixed Identity	Other Identity
Age 13	1.38	1.43	.86	1.48	.63	1.53	1.56
	(.88)	*(1.00)*	*(.53)*	*(.99)*	*(.00)*	*(.70)*	*(1.56)*
Age 14	2.17	1.27	1.42	1.44	2.75	.96	.75
	(.71)	*(.84)*	*(1.53)*	*(.91)*	*(.00)*	*(.51)*	*(.87)*
Age 15	1.13	1.06	1.38	1.29	.	1.39	1.19
	(.18)	*(.79)*	*(1.60)*	*(.91)*		*(.95)*	*(.44)*
Age 16	.75	1.21	.44	1.16	3.00	1.00	1.14
	(.00)	*(1.03)*	*(.62)*	*(.94)*	*(.00)*	*(.77)*	*(.85)*
Age 17	.63	.65	1.25	.87	.	.83	.38
	(.18)	*(.77)*	*(.00)*	*(.93)*		*(.91)*	*(.53)*
Age 18	1.38	.57	2.75	.69	.25	.61	.
	(1.60)	*(.75)*	*(.00)*	*(.77)*	*(.00)*	*(.63)*	

Note: ANOVA analyses revealed no significant differences among these racial identity groups (p = .10 to .95, by age of comparison)

Additional correlational analyses were run to evaluate associations between self-disclosure and demographic context variables. No significant correlations were identified between self-disclosure at any age and neighborhood characteristics or family socioeconomic status (see Table 16).

Table 16. Correlation of Family Income and Neighborhood Quality with Self-Disclosure in Adolescence

	Self-Disclosure					
	Age 13	Age 14	Age 15	Age 16	Age 17	Age 18
Family Income (SES)	-.01	-.03	.09	.01	.03	.17
Neighborhood Connectedness	-.08	-.17*	.09	.04	.10	.14
Neighborhood Deterioration and Crime	.11	.10	-.04	.03	-.03	-.17
Neighborhood Cohesion	-.10	-.15	.09	.02	.09	.17
Neighborhood Risk	.03	.14	-.07	.06	-.09	-.11

*Note: *p < .05*

In sum, only male gender was associated with systematically less self-disclosure across adolescence. No associations between self-disclosure and other demographic variables (including income, neighborhood qualities, and participants' racial-identity, and racially minoritized identity status). Based on this information, gender and income were implemented as covariates in all analyses (due to established associations between gender and self-disclosure, as well as the literature base suggesting associations among income, mental health, and relational processes; Reiss, 2013).

Primary Analyses

Hypothesis 1. Characterizing the Self-Disclosure Construct: *Observed self-disclosure captures a valid process that displays a degree of stability over time and is observable by others.*

First, to evaluate the stability of self-disclosure within-person, a series of correlations were run on participants' self-disclosure each year across the study time span (see Table 17). These correlations indicated that self-disclosure has *some* degree of stability, particularly from age 13 to age 16 (R ranged from .20 to .22).

Table 17. Participants' Self-Disclosure in Support-Seeking Conversations with Best Friend

	Age 13	Age 14	Age 15	Age 16	Age 17	Age 18
Age 13	--	.22**	.06	.22**	.15	-.01
Age 14	.	--	.22**	.21*	.19*	.23*
Age 15	.	.	--	.20*	.25**	.15
Age 16	.	.	.	--	.15	.02
Age 17	.	.	.	.	--	.15
Age 18	.	.	.	.	.	--

*p < .05, **p < .01, ***p < .001

Next, to assess the validity of self-disclosure as coded in the study, correlations were evaluated between participants' self-disclosure and their best friend's report of the participant's interpersonal competence and general comfort with disclosure, outside of the support-seeking task (see Table 18). Again, some consistent associations arose: the amount of self-disclosure participants displayed when support-seeking was related to their best friend's assessment of the participant's comfort with disclosure at age 14 and age 16 (R = .25 and .17, respectively) and broad interpersonal competence at ages 14, 15, and 16 (R = .17 to .25). We see stronger associations when looking at the means of self-disclosure, interpersonal competence, and comfort with disclosure when aggregated *across* adolescence (R = .19 and .24, p < .001). By taking the mean and removing some of the year-by-year fluctuations, we see that participants' general tendency to self-disclose is correlated with their best friend's report of their interpersonal competence and comfort with disclosure.

Table 18. Correlation of Best Friend Perceptions and Participants' Self-Disclosure

	Interpersonal Competence	Comfort with Disclosure
Age 13 Disclosure	.01	.04
Age 14 Disclosure	.25**	.16*
Age 15 Disclosure	.20*	.12
Age 16 Disclosure	.17*	.17*
Age 17 Disclosure	.01	.06
Age 18 Disclosure	.05	.00
	Mean Interpersonal Competence	Mean Comfort with Disclosure
Mean Disclosure	.19**	.24**

*p < .05, **p < .01, ***p < .001

In sum, we see initial evidence for a modest degree of within-person stability of self-disclosure. This stability, indicated by self-disclosure levels that are *generally* correlated with one another, suggests that there is a level of within-individual consistency with regard to the tendency to disclose in this context (a support-seeking task with a best friend in a lab setting). Furthermore, a participant's mean levels of disclosure across adolescence arose as a correlate of their best friend's perception of their comfort with disclosure as well as their overall interpersonal competence. These associations lend some support for the self-disclosure code as a meaningful construct that is observable by others. However, it is clear that these intercorrelations fluctuate year-by-year.

Hypothesis 2. Short-Term Adjustments in Disclosure. *Participant and best friend self-disclosure will be correlated such that more disclosing by one interaction partner is correlated with more disclosing by the other interaction partner in the same conversation. In a second conversation (Task 2) immediately following the first (Task 1), best friends will "adjust" their levels of disclosure to more closely match the levels of disclosure demonstrated by the participant in the first conversation.*

First, correlations among self-disclosure within support-seeking conversations were run to evaluate the extent to which interaction partners "match" each other in level of self-disclosure. Participants and their best friends demonstrated relatively similar levels of self-disclosure within the same interaction, repeatedly across adolescence. When the participant sought support from their best friend, the two interaction partners demonstrated highly correlated levels of self-disclosure each year between age 13 and 17 (R ranged from .29 to .50, *p*'s < .001; see Table 19). When the best friends sought support from the participants, the dyad again demonstrated correlated self-disclosure levels each year from age 13 to 18 (R ranged from .21 to .38). Regardless of who sought support from whom, the participants and their best friends repeatedly demonstrated mirroring levels of self-disclosure, whether they served as the support-seeker or support-provider.

Table 19. Correlations Between Participant and Best Friend's Self-Disclosure

	Task 1: Participant Seeking Support	Task 2: Friend Seeking Support
Age 13	.50***	.23**
Age 14	.26***	.34***
Age 15	.50***	.38***
Age 16	.29***	.33***
Age 17	.31***	.25**
Age 18	.06	.21*

*p < .05, **p < .01, ***p < .001

Every year, the participant's support-seeking interaction (Task 1) preceded the best friend's support-seeking interaction (Task 2); opening the opportunity to investigate the best friend's adjustments in self-disclosure when *they* seek advice, based on the level of self-disclosure displayed by the participant *immediately prior.* Regressions were run to predict relative changes in best friend's self-disclosure across the two tasks based on the participants' self-disclosure, after controlling for gender and income. From Age 14 to 17, participants' levels of self-disclosure in Task 1 predicted increases in best friends' level of self-disclosure in Task 2 over and above best friends' levels of self-disclosure in Task 1, after controlling for adolescents' self-reported gender identity and parent-reported family income (see Table 20).

Table 20. Predicting Best Friend's Disclosure in Task 2 from Disclosure in Task 1

	Best Friend's Disclosure (Task 2)						
	Model 1 $\beta_{Age\ 13}$	Model 2 $\beta_{Age\ 14}$	Model 3 $\beta_{Age\ 15}$	Model 4 $\beta_{Age\ 16}$	Model 5 $\beta_{Age\ 17}$	Model 6 $\beta_{Age\ 18}$	Model 7 $\beta_{MeanAges}$
Gender	.53***	.58**	.19	.59***	.24	.09	.31**
Income	-.04	.02	-.04	.01	.04	.08	.00
Best Friend's Disclosure (Task 1)	.05	.04	-.02	.21*	.26**	.16	.18*
Participant's Disclosure (Task 1)	.14	.24**	.30**	-.19*	.22**	.09	.33***

Note: *p < .05, **p < .01, ***p < .001
Each column represents its own regression, Models 1-6 investigate within-year predictions (Age 13 to 18). Model 7 investigates predictions from mean disclosure behaviors across the six time points in the study.

These outcomes offer mixed support for the hypothesis. Often, best friends appeared to "match" teens' levels of self-disclosure across interactions, displaying increases in self-disclosure at age

14, 15, and 17; though, best friends also demonstrated a *decrease* in self-disclosure at age 16. Best friends adjusted for the level of disclosure they witnessed from the participant in the immediately preceding interaction, even after accounting for the amount that they themselves disclosed in that interaction. Collapsing across participation years, we see similar, stronger predictions when performing the regression on mean levels of disclosure by each party in the two subsequent interactions. Again, the change in disclosure offered by the best friend in their support-seeking task is predicted by the amount of disclosure demonstrated by the participant in their support-seeking task six minutes prior.

A follow-up, structural equation model was analyzed in order to identify whether predictable patterns arise in relations among participants' and friends' self-disclosure when looking across adolescence. The model consisted of cross-lagged predictions within-year between participant-seeking and best friend-seeking interactions, as well as within-partner predictions across years, with structurally similar paths constrained to be equal (AIC = 9773.63, BIC = 9992.52, CFI = .63, RMSEA = .06, SRMR = .12; see Figure 2).

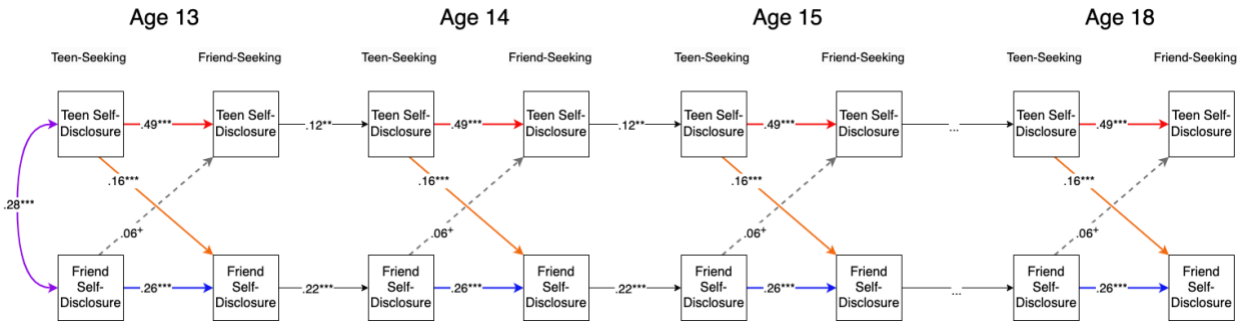

Figure 2. Structural Equation Model of participants' and best friends' self-disclosure within and across years. Path colors indicate where paths were constrained to be equal.

This model suggests that relatively high disclosure predicts relatively high disclosure within-individual on multiple timescales: within subsequent interactions for both participants (β = .49, p < .001) and their best friends (β = .26, p < .001); as well as across years for both participants (β = .12, p < .01) and their best friends (β = .22, p < .001). Additionally, in subsequent interactions, participants' level of

self-disclosure when seeking support predicted increases in their best friend's self-disclosure when they were seeking support (β = .16, p < .001).

In sum, analyses indicated continued evidence that interaction partners mirror the amount of self-disclosure displayed by the other *within* the same conversation. These analyses also extend those findings by demonstrating these associations across different goal-directed interactions (when each of the two partners takes turns seeking support). Furthermore, we identified new evidence that young people also immediately adjust the amount of disclosure in a new interaction, of which they have control, based on the amount of disclosure that their interaction partner demonstrated in the immediately preceding interaction.

Hypothesis 3. Tracking Co-Development of Self-Disclosure: *Higher levels of self-disclosure by one member of the dyad in a given year will predict increases in self-disclosure the following year. This trajectory of iteratively increasing self-disclosure will cascade into adulthood, such that individuals with highly disclosing friendship partners in adolescence will be relationships with highly disclosing romantic partners in adulthood.*

Next, investigations turned to longer-term predictions of adolescent dyads' co-developing self-disclosure tendencies. *R* package *lavaan* (Rosseel, 2012) was used to construct Random Intercept Cross-Lagged Panel Models using Full Information Maximum Likelihood to handle missing data (Arbuckle, 1996). These models were selected for their use of latent variable means to calculate a random intercept which parses between-subjects variance, allowing for within-subject interpretation of longitudinal model parameters (Mulder et al., 2021). First, a model was analyzed describing the autoregressive and cross-lagged predictions between teens and their supportive peers in teens' advice-seeking (AIC = 5034.75, BIC = 5102.15, CFI = .84, TLI = .85, RMSEA = .05, SRMR = .10; See Figure 3). The model identified significant autoregressive predictions from participants' own disclosure each year (β = .16, p < .001), suggesting that teens who disclose relatively more one year were likely to continue to

disclose relatively more in the subsequent year. Furthermore, significant lagged predictions were identified from best friends' disclosure one year to participants' disclosure the following year (β = .15, p < .01). Over and above teens' own disclosure levels, when a best friend disclosed relatively highly one year, participants were likely to demonstrate relative increases in self-disclosure the following year.

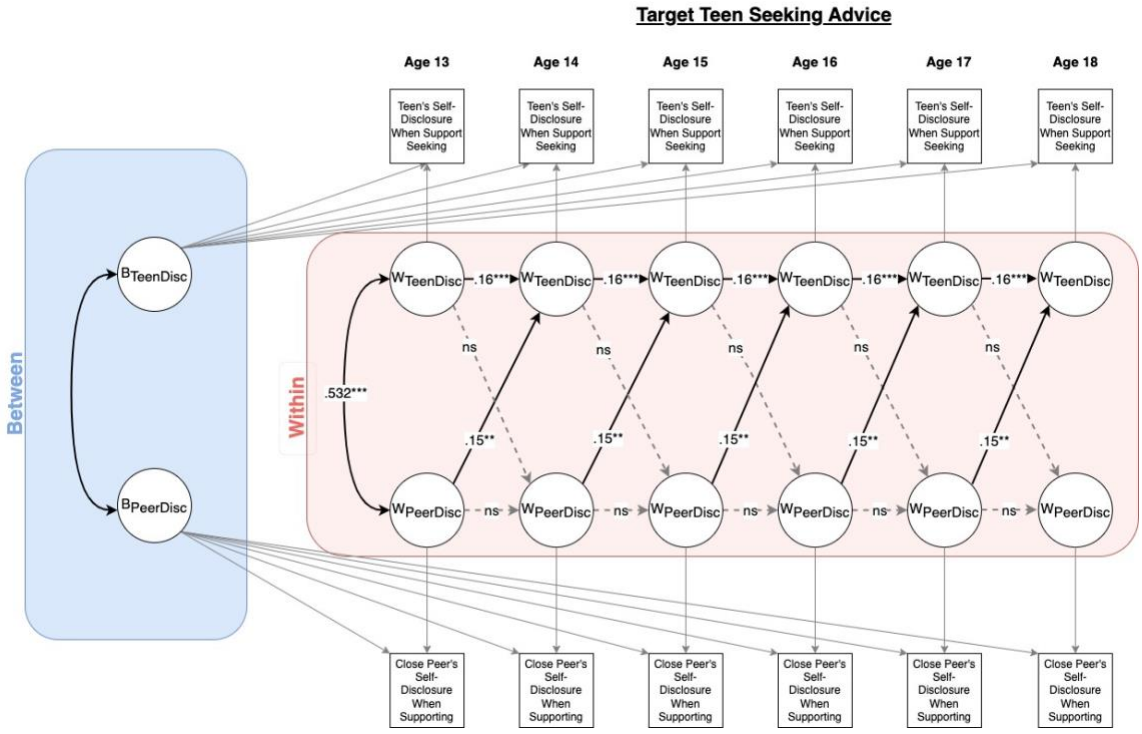

Figure 3. Random Intercept Cross-Lagged Panel Model displaying autoregressive and cross-lagged relations between teens' self-disclosure when seeking support and their peer's self-disclosure when providing support from age 13 to 18. Correlations between variables at each age not displayed for clarity.

A second model was identified to describe the autoregressive and cross-lagged predictions between participants and best friends when the best friend seeks support and the participant provides support (AIC = 4743.02, BIC = 4810.42, CFI = .87, TLI = .88, RMSEA = .04, SRMR = .09; See Figure 4). This model identified autoregressive predictions within best friends' disclosure when support-seeking (β = .25, p < .001) and participants' self-disclosure when providing support (β = .10, p < .05), both of which suggest relatively high self-disclosure for one of the dyad at one time point predicts relatively high disclosure for that person at the following time point. Additional lagged predictions were identified from

best friend's self-disclosure when seeking support to participants' self-disclosure when providing support (β = -.13, p < .05). This prediction suggests that, after accounting for autoregressive effects, when a best friend demonstrates relatively high levels of self-disclosure when seeking support one year, participants demonstrate relatively lower levels of self-disclosure when supporting their best friend the following year; thus, the pattern in the friend-seeking support task was the exact opposite of the pattern in the participant-seeking support task.

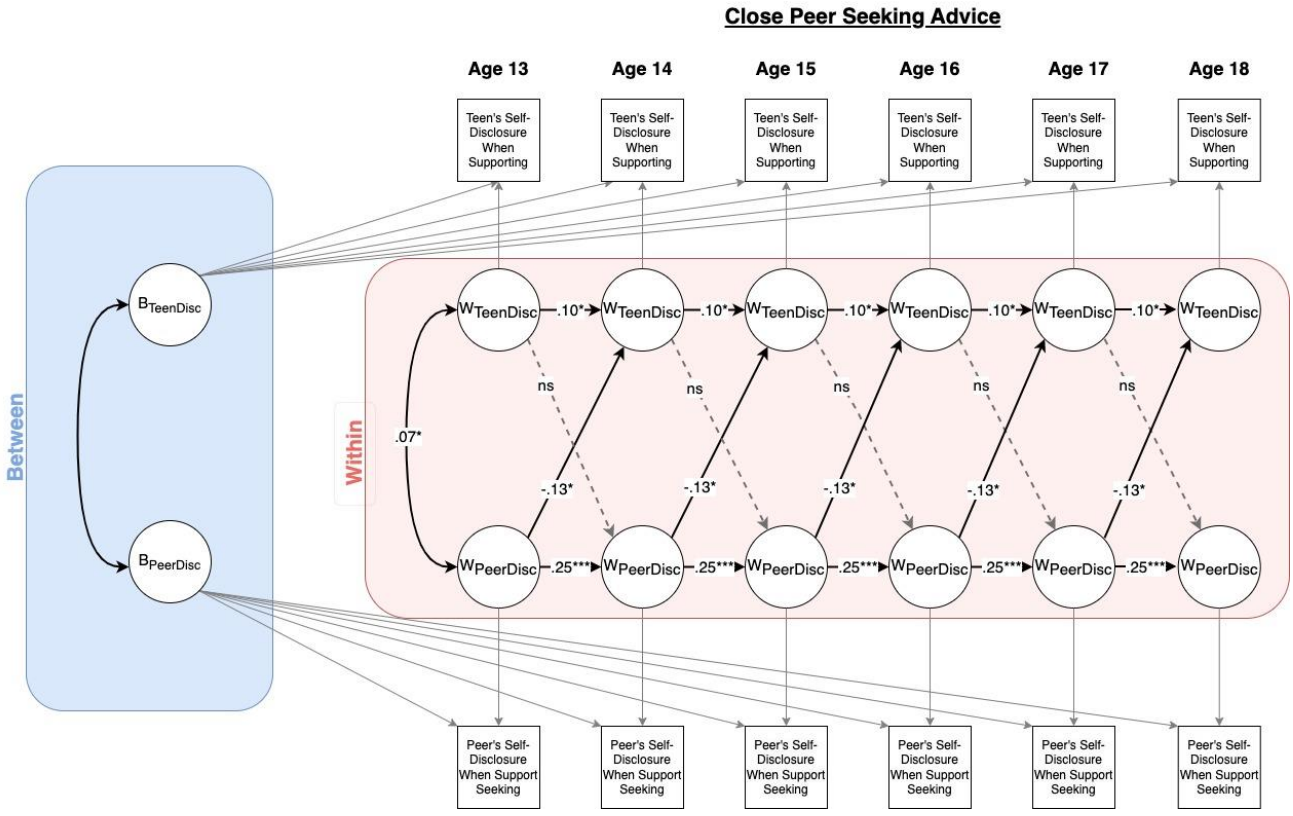

Figure 4. Random Intercept Cross-Lagged Panel Model displaying autoregressive and cross-lagged relations between teens' self-disclosure when providing support and their peer's self-disclosure when seeking support from age 13 to 18. Correlations between variables at each age not displayed for clarity.

A final, third model was identified to describe autoregressive and cross-lagged predictions between participants' and best friends' self-disclosure in their own, respective support-seeking

conversations across adolescence (AIC = 4927.95, BIC = 4995.35, RMSEA = .04, CFI = .81, TLI = .82, SRMR = .10; See Figure 5). This model identified significant autoregressive predictions of participants' self-disclosure when seeking support (β = .17, p < .001), as well as best friends' self-disclosure when seeking support (β = .21, p < .001). Additionally, cross-lagged predictions were identified from best friends' self-disclosure when support-seeking to participants' self-disclosure when support seeking the following year (β = .10, p < .05). This model suggests teens and their best friends each show patterns of relatively high amounts of self-disclosure in support-seeking interactions when demonstrating relatively high self-disclosure when support-seeking in a previous year. Additionally, when a teen's best friend is relatively higher in self disclosure one year, that teen is likely to demonstrate relatively high self-disclosure the following year, over and above patterns identified by autoregressive predictions.

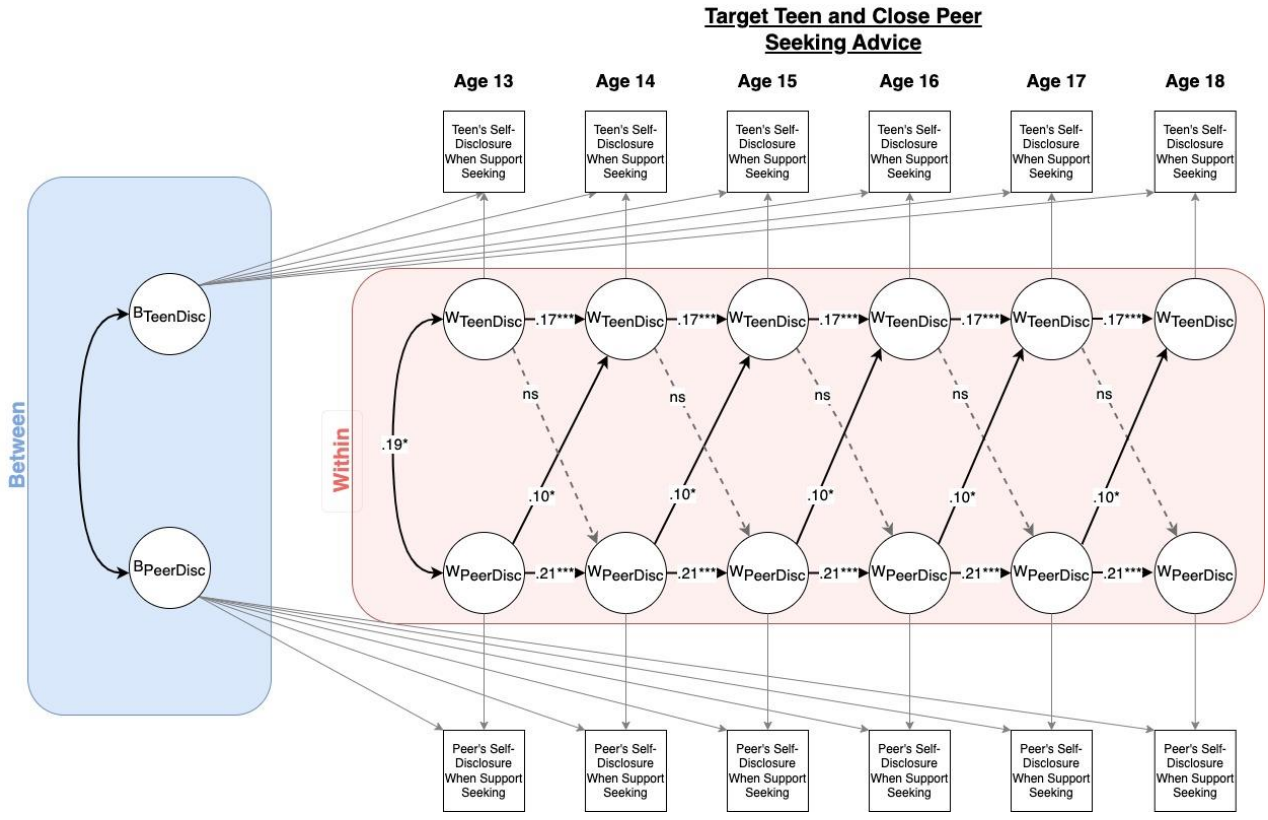

Figure 5. Random Intercept Cross-Lagged Panel Model displaying autoregressive and cross-lagged relations between teens' self-disclosure when seeking support and their peer's self-disclosure when seeking support from age 13 to 18. Correlations between variables at each age not displayed for clarity.

To investigate the potentially longer-lasting and cross-relationship reaches of self-disclosure trajectories, analyses predicting to self-disclosure within adult romantic relationships were also investigated. Because of the interest in general tendency to self-disclose in these two key relationship contexts, means were taken of participant self-disclosure to best friends (age 13 to 18), best friend self-disclosure to participants (age 13 to 18), participant self-disclosure to romantic partners (age 17 to 33), and romantic partner self-disclosure to participant (age 17 to 33). Correlational analyses indicated that participants' disclosure with their best friend in adolescence was correlated with their disclosure to their romantic partners (R = .21, $p < .05$, see Table 91). Additionally, best friends' disclosure to the participant in adolescence was *also* correlated with the participant's disclosure to their later romantic partners (R = .24, $p < .01$). Finally, as discussed above, interaction partners (both adolescent best friends or adult romantic partners) tended to match their levels of disclosure with participants. Participants' disclosure correlated with their adolescent best friends' disclosure (R = .42, $p < .001$) and with their romantic partner's disclosure in adulthood (R = .27, $p < .001$).

Table 19. Correlations of Mean Disclosure Levels Among Major Close Relationships

	1. Participant to Best Friend Disclosure	2. Best Friend Disclosure	3. Participant to Romantic Partner Disclosure	4. Romantic Partner Disclosure
1. Participant to Best Friend Disclosure	--	.42***	.21*	.06
2. Best Friend Disclosure	.	--	.24**	-.02
3. Participant to Romantic Partner Disclosure	.	.	--	.27***
4. Romantic Partner Disclosure	.	.	.	--

*$p < .05$, **$p < .01$, ***$p < .001$

Follow-up analyses were run to discern the long-term predictive relation of disclosure processes in adolescence to disclosure processes in adulthood. A regression was run to predict changes in participants' disclosure from adolescent friendships to adult romantic relationships, based on adolescent best friends' self-disclosure (see Table 20). Results suggest that participants whose best friends were relatively highly disclosing demonstrated relative increases in their self-disclosure in the transition from adolescent best friendships to adult romantic relationships ($\beta = .17$, $p < .05$).

Table 20. Predicting Participant Disclosure to Romantic Partner in Adulthood

	β	ΔR^2	Total R^2
Gender	.02	.01	.01
Participant Self-Disclosure to Best Friend in Adolescence	.09	.03	.04
Best Friend Self-Disclosure to Participant in Adolescence	.17*	.04*	.08*

*$p < .05$, **$p < .01$, ***$p < .001$

In sum, not only do individuals and their interaction partners appear to adjust disclosure levels in-the-moment of support-seeking and provision (albeit, differently in different interactions); it appears that disclosure inputs from close others in adolescents predict disclosure behaviors in adulthood, even after accounting for an individual's baseline level of self-disclosure.

Hypothesis 4. Linking Self-Disclosure and Mental Health Across Time: *Predictions between self-disclosure and mental health will be identified across adolescence, such that engaging in more self-disclosure each year will be associated with decreases in internalizing symptoms the following year. Furthermore, individuals who disclose more in adolescence will also engage in relatively higher amounts of disclosure in adulthood and disclosing more in adolescence will be associated with reduced internalizing symptoms in adulthood.*

Initial correlational analyses suggested preliminary evidence for *some* inconsistent links between mental health symptoms and adolescents' disclosure (see Table 21). Primarily we see depressive symptoms were typically unrelated to concurrent levels of disclosure, with the exception of

ages 13 and 18 (R = -.20 and .26, respectively). At age 13, higher reported depressive symptoms were associated with lower disclosure, an association that flipped directions at age 18. Where anxious symptoms were related to self-disclosure (at age 16; R = .22, $p < .01$), relatively higher reported anxious symptoms were associated with higher levels of disclosure.

Table 21. Correlations of Self-Disclosure and Concurrent Mental Health Symptoms

	Correlations of Self-Disclosure and Depressive Symptoms	Correlations of Self-Disclosure and Anxious Symptoms
Age 13	-.20**	-
Age 14	.07	-
Age 15	.13	.22**
Age 16	.09	.10
Age 17	.06	.07
Age 18	.26**	-

*$p < .05$, **$p < .01$, ***$p < .001$

Random Intercept Cross-Lagged Panel Models revealed no significant cross-lagged predictions between adolescents' self-disclosure and their reported levels of anxiety and depressive symptoms. Thus, some follow-up analyses were run, to examine the possibility that in order to draw meaningful connections between mental health and self-disclosure, we must look at individuals' functioning *in general,* rather than at a specific snapshot in time. First, several significant correlations arose among mental health symptoms and self-disclosure when comparing mean levels in adolescence and adulthood (see Table 22). Within adolescent best friendships *and* later romantic relationships, self-disclosure and mental health symptoms tended to covary, such that greater self-disclosure was associated with higher reported depressive symptoms and higher reported anxious symptoms (R in best friendships = .16 and .18 for depressive and anxious symptoms, respectively; R in romantic relationships = .18 and .17 for depressive and anxious symptoms, respectively). Furthermore, mean self-disclosure across the two relationships was correlated (R = .21, $p < .05$). Depressive and anxious symptoms also demonstrated a degree of stability from adolescence to adulthood (R = .49 and .39, respectively). Across the board, internalizing symptoms were relatively highly intercorrelated (R ranged from .36 to .81).

Table 22. Correlations of Self-Disclosure and Mental Health Symptoms in Adolescence and Adulthood

	With Best Friend (Age 13-18)			With Romantic Partner (Age 17-31)		
	1. Self-Disclosure	2. Depressive Symptoms	3. Anxious Symptoms	4. Self-Disclosure	5. Depressive Symptoms	6. Anxious Symptoms
1.	--	.16*	.18*	.21*	.15*	.11
2.	.	--	.54***	.09	.49***	.56***
3.	.	.	--	.16	.36***	.39***
4.	.	.	.	--	.18*	.17*
5	.	.	.	.	--	.81***
6.	.	.	.	.	.	--

*p < .05, **p < .01, ***p < .001

Regression analyses were run to examine predictions of relative changes in self-disclosure levels from best friendships to romantic relationships after accounting for gender, income, and mean symptom levels in adolescence. Additionally, regression analyses were run to investigate hypothesized changes in adult mental health symptoms associated with prior self-disclosure levels in adolescence. These long-term predictions from mean symptom levels in adolescence into adulthood did not reveal significant, predictable *changes* in mental health symptoms based on self-disclosure. There were also no significant changes in self-disclosure from adolescence to adulthood from baseline mental health symptoms.

Standard Cross-Lagged Panel Models were examined to evaluate potential autoregressive and cross-lagged associations between mental health symptoms and disclosure from adolescence into adulthood (RICLPM analyses were not applicable as they require at least three observations). Analyses revealed strong auto-regressive predictions within-construct, and no cross-lagged predictions between symptoms and disclosure across the relationships and time period (see Figures 6 and 7).

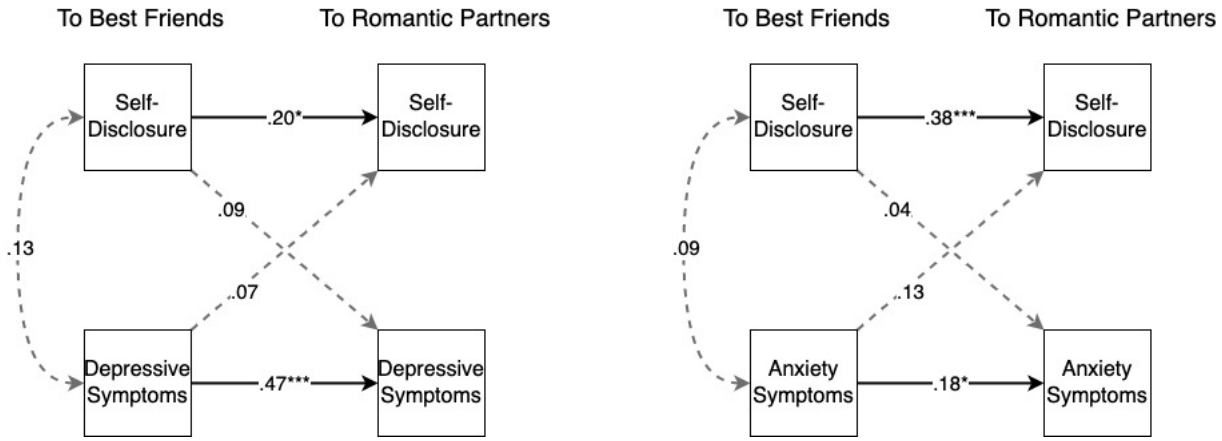

Figure 6 and 7. Cross-Lagged Panel Models displaying autoregressive and cross-lagged relations between teens' self-disclosure and mental health symptoms from best friend relationships in adolescence to romantic relationships in adulthood. Both models control for participant gender and baseline family income.

In sum, significant correlations were identified among concurrent mental health symptoms and self-disclosure, such that *on average,* relatively high anxious and depressive symptoms clustered with relatively high self-disclosure in both adolescence and adulthood. However, when looking to understand developmental interrelations among these constructs, we see autoregressive predictions among symptoms and self-disclosure, with no significant cross-lagged predictions.

Hypothesis 5. Linking Self-Disclosure and Relational Functioning Across Time: *Reciprocal predictions between self-disclosure and relationship quality will be identified across adolescence, such that adolescents in high-quality relationships engage in more self-disclosure, and that each predicts increases in the other across adolescence. Furthermore, individuals who disclose more in adolescence will also engage in relatively higher amounts of disclosure in adulthood and will be in higher-quality romantic relationships in adulthood.*

A random intercept cross-lagged panel model was examined to describe autoregressive and cross-lagged predictions between teens' self-disclosure when seeking support and their reports of their relationship quality with their close peer (AIC = 4931.77, BIC = 4999.28, CFI = .90, TLI = .91, RMSEA = .06, SRMR = .10; See Figure 8). Autoregressive predictions were identified within participants' self-disclosure

when seeking support (β = .16, $p < .001$) and participants' report of the quality of their best friendship (β = .62, $p < .001$). Additionally, cross-lagged predictions were identified from self-disclosure to friendship quality (β = .16, $p < .05$) and from friendship quality to participants' self-disclosure (β = .08, $p < .05$). Model parameters suggest that relatively higher self-disclosure at one year predicted relatively high self-disclosure at future years, and relatively high friendship quality at one year predicted relatively high friendship quality the following year. Additionally, after accounting for autoregressive associations, high friendship quality one year predicted relatively high self-disclosure the following year *and* relatively high self-disclosure one year predicted high friendship quality the following year.

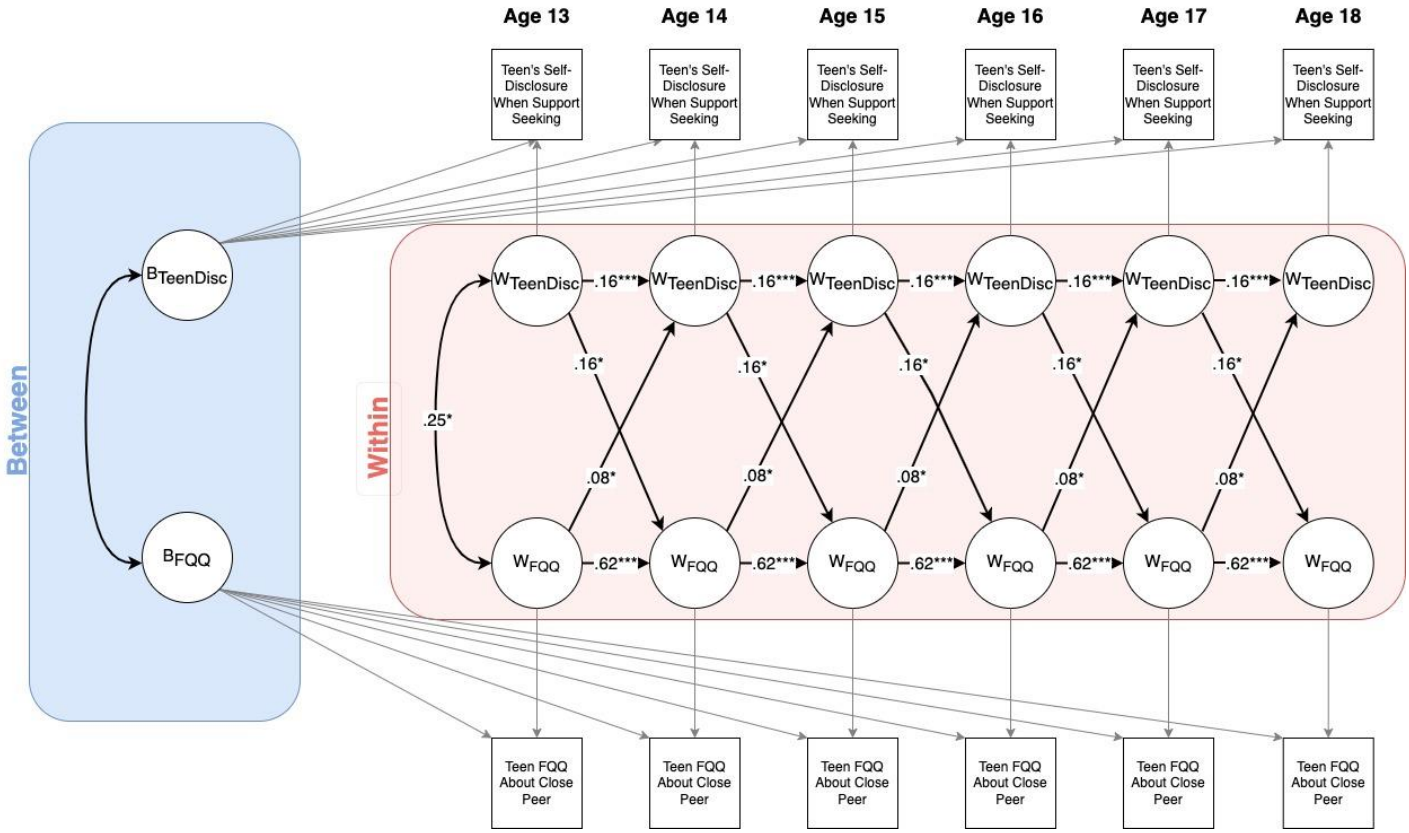

Figure 8. Random Intercept Cross-Lagged Panel Model displaying autoregressive and cross-lagged relations between teens' self-disclosure when seeking support and their reports of the quality of their relationship with their close peer from age 13 to 18. Correlations between variables at each age not displayed for clarity.

Analysis of an additional random intercept cross-lagged panel model between the participant's disclosure and an assessment of their relationship quality with peers *broadly* (via the IPPA) revealed no such significant relationships (see Supplemental Figure 1).

In order to investigate whether these patterns of disclosure and relationship quality cascade from adolescent peer relationships to adult relationships, several follow-up analyses were run. First, preliminary analyses indicated that level of self-disclosure by participants and their best friends in adolescence were not consistently correlated with their relationship status at any point in adulthood (i.e., a binary variable coding for whether the participant endorsed being in a relationship of at least three months' duration; see Table 23). This suggests that the subsample of participants who participated in romantic relationship follow-up visits were not disproportionately drawn from a particularly high-disclosing or particularly low-disclosing subset of the broader sample.

Table 23. Correlations Between Self-Disclosure in Adolescence and Later Romantic Relationship Status

	Mean Participant Self-Disclosure (Age 13-18)	Mean Best Friend Self-Disclosure (Age 13-18)
Relationship Status Age 20	.18*	.07
Relationship Status Age 21	.08	.07
Relationship Status Age 22	.04	.01
Relationship Status Age 23	.11	-.01
Relationship Status Age 24	.21**	.11
Relationship Status Age 25	.12	.04
Relationship Status Age 26	.13	-.03
Relationship Status Age 27	.02	.03
Relationship Status Age 28	-.00	.09

*Note: *p < .05, **p < .01*
Relationship Status coded such that 0=not in a relationship, 1=in a relationship

Correlational analyses indicated associations among self-disclosure to best friends in adolescence and later perceived supportiveness of romantic partners (R = .22, $p < .001$), as well as a potential cascade from friendship quality in adolescence to adult romantic relationship supportiveness (R = .32, $p < 001$) and satisfaction (R = .22, $p < .01$; see Table 24).

Table 24. Correlations Among Self-Disclosure Behaviors with Best Friends and Relationship Quality

	1	2	3	4	5
1. Participant Self-Disclosure to Best Friend (Age 13-18)	--	.41***	.30***	.22**	.11
2. Best Friend Self-Disclosure to Participant (Age 13-18)	.	--	.17*	.10	.04
3. Self-Reported Friendship Quality (Age 13-18)	.	.	--	.32***	.22**
4. Perceived Supportiveness in Romantic Relationship (Age 17-29)	.	.		--	.69***
5. Self-Reported Satisfaction with Relationship (Age 17-29)	.	.	.	.	--

*Note: *p < .05, **p < .01, ***p < .001*

Regression analyses were examined to evaluate trajectories of self-disclosure from adolescence to adulthood. Associations were identified such that adolescents who disclose more to their best friends also tended to disclose more to their romantic partners in adulthood; a relationship that was borderline significant at the trend level (R^2 = .14, p = .056; see Table 25).

No predictions were identified from adolescent relationship quality to changes in self-disclosure from best friendships to romantic relationships after accounting for gender, income, and friendship quality in adolescence. Additionally, regression analyses were run examining the reciprocal process, to investigate hypothesized changes in relationship quality associated with self-disclosure levels in adolescence. These long-term predictions based on relationship quality did not reveal significant, predictable *changes* in self-disclosure in romantic relationships, and vice versa.

Standard Cross-Lagged Panel Models were run to evaluate potential autoregressive and inter-relations between relationship quality and disclosure from adolescence into adulthood (RICLPM analyses were not applicable as they require at least three observations). Analyses revealed strong auto-regressive predictions within-construct, and no cross-lagged predictions between relationship quality and disclosure across the relationships and time period (see Figures 9 and 10).

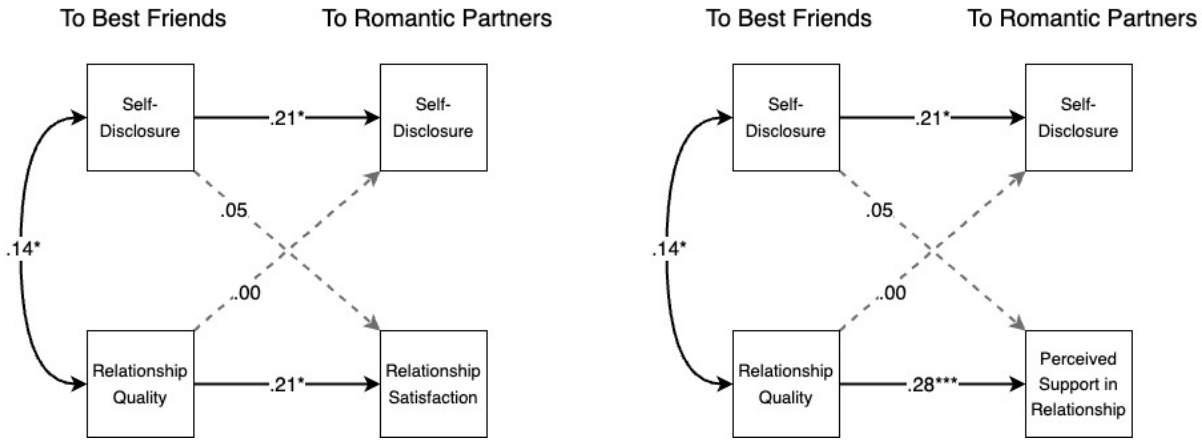

Figure 9 and 10. Cross-Lagged Panel Models displaying autoregressive and cross-lagged relations between teens' self-disclosure and aspects of relationship quality from best friend relationships in adolescence to romantic relationships in adulthood. Both models control for participant gender and baseline family income.

In sum, significant correlations were identified among relationship quality and self-disclosure, such that *on average,* relatively high perceived support and satisfaction with adolescent friendships and adult romantic relationships occurred for participants who self-disclosed more in support-seeking interactions. However, when looking to understand developmental interrelations among these constructs, we see autoregressive predictions among relationship quality and self-disclosure, with no significant cross-lagged predictions. Perhaps, again, we see that relationship functioning in adolescence establishes a meaningful baseline that sets the stage for future functioning, however, we do not find evidence for self-disclosure as a predictor of change in relationship quality, nor for relationship quality as predicting changing self-disclosure across relationships in the longer-term.

Hypothesis 6. Low-Disclosers and Long-Term Functioning: *The subset of adolescents who consistently disclose at relatively low amounts across adolescence will disclose less in adulthood and will endorse lower-quality relationships and higher amounts of internalizing symptoms in adulthood. They*

will be a distinct group such that these effects will exist over-and-above the simple linear effects of disclosure levels.

The extent to which any individual in the sample was deemed "low disclosing" was assessed by the percentage of times that any participant disclosed in the bottom quartile of the sample, relative to the amount of times that they participated across the six time points in adolescence. For example, if adolescent A participated five times and disclosed in the bottom quartile at three of those time points, their rate of "low disclosing" is three out of five times (3/5), with a corresponding value of .6. If adolescent B participated twice but *never* disclosed in the bottom quartile, their rate of "low disclosing" is zero out of two times (0/2), with a corresponding value of 0.

In this sample, participants disclosed in the bottom quartile 27.7% of the time that they participated (SD = 24.81). Clearly, it is not *particularly* unusual to disclose in the bottom quartile when support-seeking at least *some* of the time. However, it is also clear that it is not typical for an individual teen to sit in the bottom quartile all or most of the time.

Boys were more likely than girls to be in the low-disclosing group ($t = 4.98$, $p < .001$; $M_{boys} = .37$ ($SD_{boys} = .25$); $M_{girls} = .20$ ($SD_{girls} = .21$)). However, low-disclosing was not significantly associated with neighborhood quality, OXTR methylation (in a linear or quadratic pattern), racial identity, minoritized status, or baseline socioeconomic status (as assessed by parent-related household income).

In this sample, "low disclosing" as defined here was not associated with adulthood mental health symptoms, relationship quality, or self-disclosure. At a trend level, individuals with a greater tendency to be low disclosing in adolescence tended to share less with their romantic partner ($\beta = -.31$, $p = .07$), but this is association is *weaker* than when using the continuous self-disclosure variable used in previous analyses ($\beta = .16$, $p < .05$).

In sum, we find no evidence for concurrent or future mental health or relationship satisfaction challenges based on one's tendency to "low-disclose." In fact, we also see that treating self-disclosure as

a continuous variable offers more developmental information than defining a subset of individuals who disclose relatively less than their peers more often.

Hypothesis 7. Role of Context: *The benefits of self-disclosure will be most pronounced for individuals who are in higher-quality baseline relationships, in lower-risk neighborhoods in adolescence (per parent report), in friendships characterized by high disclosure from the close friend, and who are relatively low in OXTR methylation.*

Correlational analyses were run to further characterize the conversational context surrounding participants' self-disclosures in their emotional support-seeking interactions. Specifically, supporters' engagement, level of emotional support provided, and demonstrated valuing of the support-seeker arose as strong correlates of participants' self-disclosure throughout most of adolescence (R ranging .16 to .65; see Table 25).

Table 25. Concurrent Supporter Behavioral Correlates of Participants' Disclosure in Support-Seeking Interactions Across Adolescence

	Friend's Concurrent Support Behaviors			
	Engagement	Emotional Support Given	Valuing	Mean Positive Behaviors
Age 13 Disclosure	.29***	.51***	.26***	.43***
Age 14 Disclosure	.22**	.47***	.17*	.36***
Age 15 Disclosure	.42***	.65***	.39***	.58***
Age 16 Disclosure	.29***	.55***	.27***	.46***
Age 17 Disclosure	.16*	.60***	.24**	.45***
Age 18 Disclosure	.09	.61***	.12	.38***
	Mean Engagement	Mean Emotional Support Given	Mean Valuing	Mean Positive Behaviors
Mean Disclosure	.35***	.65***	.41***	.53***

*p < .05, **p < .01, ***p < .001

Correlational analyses were also run to evaluate the role of broader societal context and adolescents' levels of self-disclosure. Mean self-disclosure levels in adolescence were correlated with gender, such that boys were less likely to self-disclose with their peers than girls (R = .38, p < .001). Self-disclosure was not correlated with neighborhood conflict, risk, or delinquency; minoritized racial or

ethnic status; or socioeconomic status. Self-disclosure demonstrated no linear or quadratic association with OXTR methylation at sites -860, -924, and -934. Self-disclosure at a given age was also uncorrelated with whether the same best friend had participated in the prior wave, or participated again in the subsequent wave.

Additional regression analyses from adolescent to adult functioning were constructed to evaluate the potential moderating role of contextual factors in the development of self-disclosure processes as well as their links to adult mental health and relationship functioning. After Bonferroni correction for multiple comparisons, no significant moderation terms were observed regarding participants' socioeconomic status, gender, racial minoritized identity status, or OXTR methylation at sites -860, -924, and -934. However, change in self-disclosure from adolescence to adulthood demonstrated significant moderation by neighborhood riskiness such that participants in parent-reported lower-risk neighborhoods demonstrated relative stability in self-disclosure across time, while individuals in parent-reported higher-risk neighborhoods demonstrated relative changes in disclosure (see Table 26, Figures 11-14).

Table 26. Predicting Change in Disclosure from Adolescence to Adulthood from Adolescent Parent-Reported Neighborhood Characteristics

	Model 1: Neighborhood Riskiness	Model 2: Neighborhood Connectedness	Model 3: Neighborhood Deterioration/Crime	Model 4: Neighborhood Cohesion
Gender	.05	.04	.05	.04
Income	.02	.03	.04	.04
Adolescent Self-Disclosure to Best Friend	.16*	.13	.15*	.14
Parent-Reported Neighborhood Characteristic	-.00	-.07	.03	-.05
Adolescent Disclosure*Neighborhood Characteristic	-.19**	.12^{+}	-.13*	.13*

*Note: +p<.07, *p<.05, **p<.01*

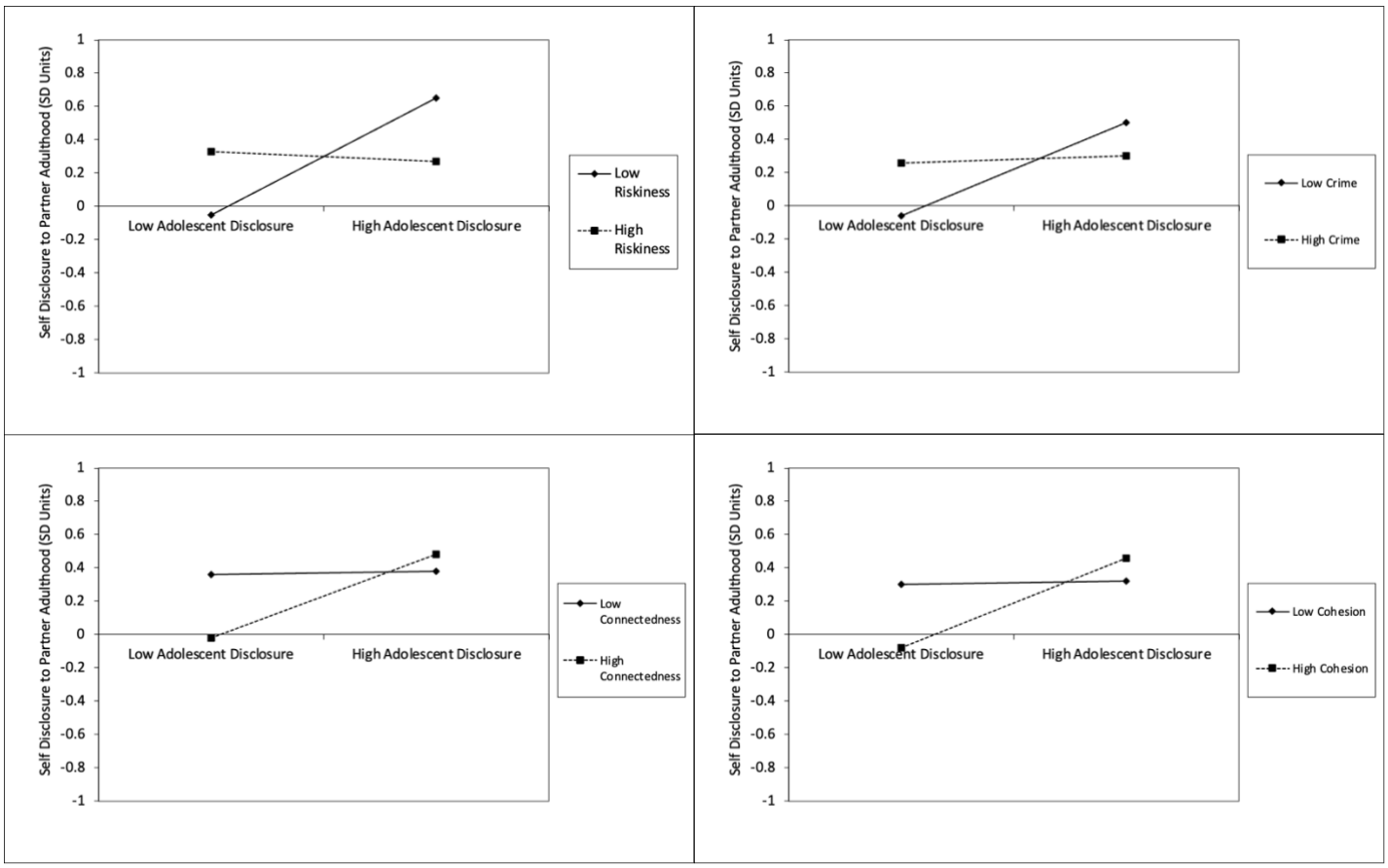

Figure 11-14. Interactions between parent-reported qualities of neighborhood (NQQ) and adolescent self-disclosure predicting change in self-disclosure from adolescent friendships to adult romantic relationships.

With regard to all four measures of neighborhood quality, adolescents whose parents described their neighborhood as lower-risk and more-connected appeared to continue the "momentum" of their levels of disclosing in adolescence by demonstrating stability to their levels of disclosing in adulthood. Meanwhile, adolescents whose parents described their neighborhood as relatively higher-risk and less-connected demonstrated less stability; suggesting that adolescent disclosure is more strongly linked to disclosure in adulthood for adolescents whose parents perceive their neighborhood as relatively lower-risk in Charlottesville, Virginia.

Follow-up simple slopes analyses were used to test the significance of the relationship between disclosure and parent-reported neighborhood characteristics across low and high levels of those neighborhood characteristics. In all models, results indicated a significant relation of neighborhood characteristics to self-disclosure change when parent-reported neighborhood quality was relatively higher (i.e., relatively higher in cohesion and connectedness, lower in riskiness and deterioration/crime; see Table 27), and a non-significant relation of self-disclosure and parent-reported neighborhood quality when that neighborhood quality was relatively lower.

Table 27. Simple Slope Analysis: Moderation of Self-Disclosure Change at Different Levels of Parent-Reported Neighborhood Characteristic Variables

	Parent-Reported Neighborhood Characteristics			
Value	$Effect_{Riskiness}$	$Effect_{Connectedness}$	$Effect_{Deterioration/Crime}$	$Effect_{Cohesion}$
+1SD	-.06	.25*	.01	.26**
Mean	.25**	.08^{+}	.19*	.17*
-1SD	.32**	.03	.29**	-.00

Note: $^{**}p < .01$, $^{*}p < .05$, $^{+}p < .07$

Summary of Results

Hypothesis 1. Characterizing the Self-Disclosure Construct: Observed self-disclosure captures a valid process that displays a degree of stability over time and is observable by others. **Partially supported.**

- Self-disclosure demonstrated some degree of within-person stability from age 13 to 18 (*Table 17. Correlations of Participants' Self-Disclosure in Support Seeking Conversation with Best Friend*).
- Self-disclosure correlated with best friends' reports of interpersonal competence and comfort with disclosure (*Table 18. Correlations of Best Friend Perceptions and Participants' Self-Disclosure*).

Hypothesis 2. Short-Term Adjustments in Disclosure: Participant and best friend self-disclosure will be correlated such that more disclosing by one interaction partner is correlated with more disclosing

by the other interaction partner in the same conversation. In a second conversation (Task 2) immediately following the first (Task 1), best friends will "adjust" their levels of disclosure to more closely match the levels of disclosure demonstrated by the participant in the first conversation.

Supported.

- Interaction partners mirror self-disclosure levels within the same conversation (*Table 19. Correlations of Participant and Best Friend's Self-Disclosure*).
- Best friends adjust self-disclosure levels in subsequent conversations, based on participants' self-disclosure in the conversation immediately prior (Task 1 to Task 2; *Table 20. Predicting Best Friend's Disclosure in Task 2 from Disclosure in Task 1*)
- Patterns of calibration persist within- and across-years in adolescence, such that high-disclosure begets high-disclosure, taking all tasks into account (*Figure 2. Structural Equation Model of Participants' and Best Friends' Self-Disclosure Within- and Across-Years*)

Hypothesis 3. Tracking Co-Development of Self-Disclosure: Higher levels of self-disclosure by one member of the dyad in a given year will predict increases in self-disclosure the following year. This trajectory of iteratively increasing self-disclosure will cascade into adulthood, such that individuals with highly disclosing friendship partners in adolescence will be relationships with highly disclosing romantic partners in adulthood. **Supported.**

- Participants seeking support: participants whose best friend disclosed relatively highly one year showed increases in self-disclosure the following year (*Figure 3. Random Intercept Cross-Lagged Panel Model of Participant Self-Disclosure When Support-Seeking and Best Friend Self-Disclosure When Support-Providing*)
- Best friends seeking support: participants whose best friend disclosed relatively highly one year showed decreases in self-disclosure the following year (*Figure 4. Random Intercept Cross-Lagged*

Panel Model of Participant Self-Disclosure When Support-Providing and Best Friend Self-Disclosure When Support-Seeking)

- Each seeking support: participants whose best friend disclosed relatively highly one year showed increases in support the following year (*Figure 5. Random Intercept Cross-Lagged Panel Model of Participant Self-Disclosure When Support-Seeking and Best Friend Self-Disclosure When Support-Seeking*)
- Self-disclosure in adolescent friendships is correlated with self-disclosure in adult romantic relationships (*Table 19. Correlations of Mean Disclosure Levels Among Major Close Relationships*)
- Adolescents whose best friends self-disclose highly show relative increases in their self-disclosure from adolescent friendships to adult romantic relationships (*Table 20. Predicting Participant Self-Disclosure to Romantic Partner in Adulthood*)

Hypothesis 4. Linking Self-Disclosure and Mental Health Across Time: Predictions between self-disclosure and mental health will be identified across adolescence, such that engaging in more self-disclosure each year will be associated with decreases in internalizing symptoms the following year. Furthermore, individuals who disclose more in adolescence will also engage in relatively higher amounts of disclosure in adulthood and disclosing more in adolescence will be associated with reduced internalizing symptoms in adulthood. **Partially supported.**

- Depressive symptoms and anxious symptoms were not consistently correlated with concurrent mental health symptoms each year in adolescence (*Table 21. Correlations of Self-Disclosure and Concurrent Mental Health Symptoms*).
- On average, depressive symptoms and anxious symptoms were associated with higher disclosure to adolescent best friends and adult romantic partners (*Table 22. Correlations of Self-Disclosure and Mental Health Symptoms in Adolescence and Adulthood*).

- Autoregressive predictions identified, in addition to associations between adolescent and adult self-disclosure, depressive and anxious symptoms in adulthood were predicted by depressive and anxious symptoms in adolescence (*Figures 6 and 7. Cross-Lagged Panel Models of Autoregressive Associations Between Self-Disclosure and Mental Health Symptoms in Adolescence and Adulthood*).

Hypothesis 5. Linking Self-Disclosure and Relational Functioning Across Time: Reciprocal predictions between self-disclosure and relationship quality will be identified across adolescence, such that adolescents in high-quality relationships engage in more self-disclosure, and that each predicts increases in the other across adolescence. Furthermore, individuals who disclose more in adolescence will also engage in relatively higher amounts of disclosure in adulthood and will be in higher-quality romantic relationships in adulthood. **Supported.**

- High self-disclosure one year was associated with higher-than-expected reports of relationship quality the following year; and high relationship quality one year was associated with higher-than-expected self-disclosure the following year (*Figure 8. Random Intercept Cross-Lagged Panel Model of Participants' Self-Disclosure When Support-Seeking and Friendship Quality*).
- Participants' levels of self-disclosure in adolescence did not associate with their relationship status in adulthood at any point in the study (*Table 23. Correlations Between Self-Disclosure in Adolescence and Later Romantic Relationship Status*).
- Participants who self-disclosed more to best friends tended to have higher-supportive romantic relationships and greater friendship quality, on aggregate (*Table 24. Correlations Among Self-Disclosure Behaviors with Best Friends and Relationship Quality*).
- Autoregressive predictions identified, in addition to associations between adolescent and adult self-disclosure, romantic relationship satisfaction and perceived supportiveness in romantic relationships in adulthood were predicted by friendship quality in adolescence (*Figures 9 and 10.*

Cross-Lagged Panel Models of Autoregressive Associations Between Self-Disclosure and Mental Health Symptoms in Adolescence and Adulthood).

Hypothesis 6. Low-Disclosers and Long-Term Functioning: The subset of adolescents who consistently disclose at relatively low amounts across adolescence will disclose less in adulthood and will endorse lower-quality relationships and higher amounts of internalizing symptoms in adulthood. They will be a distinct group such that these effects will exist over-and-above the simple linear effects of disclosure levels. **Not supported.**

- Low-disclosing did not add information above the continuous self-disclosure variable
- Boys were more likely to be in the bottom quartile of self-disclosure than girls

Hypothesis 7. Role of Context: The benefits of self-disclosure will be most pronounced for individuals who are in higher-quality baseline relationships, in lower-risk neighborhoods in adolescence, in friendships characterized by high disclosure from the close friend, and who are relatively low in OXTR methylation. **Partially supported.**

- Positive supportive behaviors (engagement, emotional support, valuing) by best friends associated with participants' self-disclosure (*Table 25. Concurrent Supporter Behavioral Correlates of Participants' Disclosure in Support-Seeking Interactions Across Adolescence*)
- Adolescents whose parents described their neighborhoods as lower-risk/higher-connected demonstrated greater stability in their levels of self-disclosure than adolescents in higher-risk, lower-connected neighborhoods (*Table 26. Predicting Self-Disclosure in Adulthood from Adolescent Self-Disclosure and Parent-Reported Neighborhood Characteristics; Figure 11-14. Interactions Between Parent-Reported Neighborhood Qualities and Self Disclosure; Table 27. Simple Slope Analyses of Moderation).*

Discussion

Preliminary Analyses

Support Topics

First, in order to contextualize self-disclosure, an exploratory investigation into the conversational content surrounding self-disclosures was performed. Common themes each year included peer relationships and conflict, romantic interests and dating, parent and sibling conflict, academic concerns, employment and money, and decision-making about extracurricular activities. Across adolescence, participants' support-seeking topics shifted from focusing on academics and extracurricular activities to focusing on more future-oriented planning. From age 13 to 18, dyads increasingly discussed their post-high school lives, considering topics such as attending college, living independently, cohabitating with a partner, and having children. Of note, no participant sought advice about the same topic more than two visits in a row, highlighting that teens seek support about a variety of topics from their best friend, rather than solely focusing on one topic across time.

There is also some indication that adolescents prioritize support-seeking about social topics. A major proportion of participants sought support about peer challenges and romantic interests each year throughout high school. It is well-established that adolescence is a developmental period marked by social sensitivity, during which important social learning occurs (Ruben et al., 2010; Somerville, 2013; Sullivan, 1953/2013). Not only do teens learn through their *implicit* experiences, based on their best friends' responses to self-disclosure; they may also prioritize engaging in *explicit* social learning processes, by discussing and evaluating social behaviors of others in their social environment when offered the opportunity to discuss any topic.

Self-Disclosure and Identity Characteristics in this Sample

Preliminary analyses investigated associations among demographic characteristics and self-disclosure, and few systematic associations arose. Most notably, girls disclosed significantly more than

boys at ages 14-16. Additionally, with regard to neighborhood characteristics, neighborhood connectedness was associated with less self-disclosure at age 14, but no associations were identified between self-disclosure and neighborhood deterioration and crime, cohesion, or overall risk at any age. There were no associations between self-disclosure and participants' racial identities, racial minoritized status, or family socioeconomic status.

With regard to the association between self-disclosure and gender, the current study coheres with existing work on differences in social processes between adolescent girls' and boys' best friendships. Previous studies using this sample have found that adolescent girls rate their friends as better supporters and engage in more emotionally supportive behavior in the support-seeking task used for the current study (Costello et al., 2022). Work with other samples has indicated that girls' self-disclosure and expression-of-emotion is more socially reinforced than boys', perhaps facilitating more opportunities for vulnerable sharing and equipping girls to manage more disclosure at a younger age (Conger et al., 2010; Gillespie et al., 2015; Seiffge-Krenke et al., 2014). Nonetheless, emotional intimacy in boys' friendships is important for well-being and development (Moran & Eckenrode, 1991). When embedded in a supportive social context, adolescent boys resist socialized, stereotypically hyper-masculine values that discourage emotional expression and vulnerable disclosure (Way et al., 2014). In this sample, at age 17 and 18, boys' and girls' levels of self-disclosure are comparable; suggesting that, while trajectories may differ by gender during mid-adolescence, boys and girls both develop similar levels of self-disclosure with their best friend by the end of adolescence. Of course, more work is needed to understand the intersection of societal and individual factors that lend themselves to meaningful vulnerable disclosure—and positive social-emotional development, generally. However, here, we see that a dip in one specific measure in mid-adolescence does not prevent "catch up" by late adolescence.

With regard to socioeconomic status, racial identity, and neighborhood characteristics, no *systematic* relation was identified between neighborhood qualities (positive or negative) and self-

disclosure across adolescence. Each of these factors were considered due to their inherent association with interpersonal power on systemic and individual levels (Dunbar, 2015; Mast, 2010). Development that aligns with dominant cultural ideologies is typically presumed to indicate positive functioning. However, this view fails to account for nuance in developmental patterns in accommodation of and resistance to culturally dominant beliefs that may be positive *and* dehumanizing (Rogers & Way, 2018). With this in mind, we consider that the current study did not find differences in self-disclosure based on racial identities, racial minoritized status, household income, and neighborhood characteristics. Adolescents across the sociodemographic spectrum value connection and intimate exchange with their close friends (Consendine et al., 2007), however, the implications of self-disclosure vary significantly based on interpersonal and societal power (Mast, 2010). The potential cost of vulnerability is much higher for adolescents whom society disempowers; and additionally for adolescents who are relatively disempowered within their own dyad (for instance, when considering interpersonal power dynamics between adolescents with two different racial identities, two different socioeconomic statuses, and the intersection of those identities; Cline, 1989; Leary, 1997). Thus, while no differences were identified in this sample, the valance, implication, and stressfulness of self-disclosure may still vary for adolescents when considering the constellation of relevant identity factors.

Primary Analyses

Hypothesis 1. Characterizing the Self-Disclosure Construct.

Correlations of participants' self-disclosure to their best friends from age 13 to 18 indicated a pattern of *some* within-person stability of self-disclosure across adolescence. Mean levels of self-disclosure across adolescence were correlated with best friends' reports of participants' comfort with disclosure and overall interpersonal competence, although the strength of the association varied by age.

Broadly, this pattern of associations lends some support for the notion that self-disclosure as a construct is both meaningful and observable by others. However, these intercorrelations fluctuate year-

by-year; primarily, we do not find evidence of *consistent* within-person levels of self-disclosure across adolescence. From this perspective, it may be more useful to characterize self-disclosure as a *behavior* used differently based on context; rather than as a character trait that is simply more present for some individuals than others (Berg & Derlega, 1987; Franzoi & Davis, 1985). A combination of internal and external factors may influence a teen's decisions to disclose at any given time, such as cultural factors, mood, conversation partner, and motivation (Ignatius & Kokkonen, 2007). In this study, participants brought in a different best friend about half of the time; changing interaction partners and relationship contexts likely lend themselves to some fluctuations in self-disclosure year-to-year (though, of note, self-disclosure was not directly correlated with the same friend participating the prior or subsequent year; see Hypothesis 7). Given practice and time across different friendships, teens may use self-disclosure selectively within close relationships to seek emotional relief, deepen intimacy and connection, or achieve some other interpersonal goal (Omarzu, 2000).

Self-disclosure as a behavior is inherently an *interpersonal process* because disclosure requires at least one other person to receive the disclosure (Szcygiel, 2019). Relatedly, highly disclosing individuals endorse higher levels of interpersonal competence than those who self-disclose less (Rubin et al., 1993). The current study replicates and strengthens this association by linking observed, behavioral self-disclosure with best friend-reported interpersonal competence across adolescence; individuals who disclosed more were rated as more interpersonally competent and more comfortable sharing than lower-disclosing individuals. Behaviors like self-disclosure (and the associated interpersonal capacities required to navigate these complex interactions) appear to be apparent to others—including interaction partners and observers. Based on the conclusion that self-disclosure is an evident, socially driven behavioral tool, the next study aim investigates how interaction partners calibrate their self-disclosure over time, based on the self-disclosure of others.

Hypothesis 2. Short-Term Adjustments in Levels of Disclosure.

Within the same supportive conversation, regardless of *which* partner sought support, the amount each partner self-disclosed was highly correlated. Furthermore, from the first to the second same-day interactions, changes in best friends' disclosure from Task 1 to Task 2 were predicted by the participants' level of self-disclosure in Task 1. Interaction partners appeared to adjust their self-disclosure levels based on the amount of self-disclosure displayed by the other person in the prior conversation.

With regard to within-conversation correlation, this study found that best friends tended to match one another's level of self-disclosure in a conversation, regardless of which member of the dyad sought support. Behavioral matching in conversations has been proposed as a conversational tool that facilitates empathy and communicate sameness and understanding (Pfeifer et al., 2008). Related work has suggested that one's own level of self-awareness and self-monitoring may influence their ability to both notice and adjust their level of self-disclosure (Kalin et al., 1991; Rubin et al., 1993). However, this research was often performed with dyads of strangers rather than close others, which could reflect an altogether different process. Related work has found that, even among strangers, reciprocity in self-disclosure led to greater interest in interacting with the conversation partner again in the future (Shaffer et al., 1982). Thus, it is difficult to disentangle whether these best friends selected one another, and indeed feel more comfortable and supported with one another, *because* of inherent tendencies to match one another in self-disclosure levels; *or* whether they have influenced one another to self-disclose at those different levels. Likely, both are true, in that adolescents select friends who share qualities with them and then reinforce shared qualities through repeated interaction (Costello et al., 2022; Stotsky et al., 2019).

These findings provide some evidence for social learning as a process through iterative calibration across repeated social interaction. When adolescents engaged in two support-seeking

interactions back-to-back, the best friend's self-disclosure when support-seeking (Task 2) was predicted by the participant's self-disclosure when support-seeking (Task 1), over and above the best friend's own self-disclosure in Task 1. Although self-disclosure demonstrates a degree of within-person consistency, adolescents adjust the amount that they self-disclose minutes later. Young people learn about themselves and relationships through repeated interactions with close others, which increase in emotional intensity in adolescence (Mikulincer & Shaver, 2020). Responsive, attuned interaction partners in adolescence affirm and reinforce ongoing interaction processes (Haydon et al., 2012; Reis, 2014). In this study, adolescents tended to match one another's levels of self-disclosure *and* adjusted their levels of self-disclosure in response to one another's level of self-disclosure. The iterative learning, reinforcement, and refinement of interpersonal behaviors, often linked to attachment processes in the literature, also includes complex affiliative behaviors like self-disclosure.

Keeping in mind this attachment perspective, involving repeated social learning and refinement, this study also investigated how self-disclosure varies both within-years and across-years. Not only do adolescent dyads refine their self-disclosure from one conversation to the next when those conversations immediately follow one another; this pattern persists across years of development. It is important to acknowledge that this sort of developmental "momentum" is observed for the same participant even though they are typically interacting with *different* best friends across the course of the study. Experiences with various close interaction partners shape an individual's expectations of themselves, close relationships, and future interactions (Mikulincer & Shaver, 2020). These findings highlight the role of peer selection; adolescents select friends with some level of underlying similarity, maintaining similar interaction dynamics even when the specific support-provider changes (Laninga-Wijnen & Veenstra, 2021). However, this method of analysis operates on aggregated observations, restricting interpretations to the sample-level. Therefore, this study further pursues this question from a

within-person analytic approach, to better understand the specific conversational contexts that facilitate individual changes in self-disclosure.

Hypothesis 3. Tracking Co-Development of Self-Disclosure.

To make within-person interpretation, random-intercept cross-lagged panel modeling was used to identify individuals' trajectories across adolescence, stabilities of those trajectories, and deviation from those trajectories. With this approach, this study identified that participants' self-disclosure was predicted by their best friends' disclosure the prior year, after accounting for participants' levels of disclosure the prior year. Through three models, this study characterized within-person change in self-disclosure across adolescence. First, when looking at participants' support-seeking conversations each year, participants whose best friend disclosed relatively highly one year showed greater than expected increases in their own self-disclosure the following year. Second, when looking at best friends' support-seeking conversations each year (i.e., when participants were *supporting* their friends), participants whose best friends disclosed relatively highly one year showed greater than expected *decreases* in self-disclosure the following year. Third, when looking at each member of the dyad in their own support-seeking behaviors across adolescence, we see that those participants whose best friends disclosed relatively highly in a given year showed greater than expected increases in their self-disclosure the following year. Finally, looking to adulthood, we see that adolescents' self-disclosure to romantic partners through age 29 was predicted by their best friends' disclosure in adolescence.

Within adolescence, these analyses offer further support for the idea that best friends' behaviors may promote or dampen the tendency to self-disclose. Teens demonstrated greater-than-expected increases in self-disclosure during their own support-seeking conversations when: 1) best friends demonstrated high self-disclosure *when supporting them* the prior year, and 2) when best friends demonstrated high self-disclosure *when seeking support from them* the prior year. In both cases, participants responded to increases in their best friend's self-disclosure by engaging in more self-

disclosure the following year. Furthermore, although the best friend often differed year-to-year, social learning patterns persisted across adolescence. As adolescents hone their understanding of themselves, close others, and relational processes like support-seeking and self-disclosing, they do so through a variety of interactions with many close others (Mikulincer & Shaver, 2020). Relatedly, by selecting friends who are similar to them, and therefore similar to one another, adolescents' developmental trajectories remain relatively smooth, as peers may display similar relationship dynamics with the adolescent (Dishion et al., 1997; Loeb et al., 2018).

Additionally, we also see some evidence that adolescents attune their self-disclosure differently depending on their conversational role. When participants were *supporting* their best friend, and the best friend self-disclosed relatively highly one year, participants demonstrated *decreases* in their self-disclosure the following year when supporting their friend. Teens reduced the amount of self-disclosure they offered when providing support to a best friend in need; suggesting they do not simply respond to "more" disclosure with "more" disclosure in turn, but rather, that they are engaged in nuanced social learning processes. As teens develop self-awareness, empathy, and self-regulation, they may refrain from self-disclosing when serving in a listening, supporting role (Rubin et al., 1993). Just as *receiving* attuned, supportive responses from an interaction partner is rewarding, so is *providing* attuned, supportive responses to an interaction partner (Andalibi et al., 2017; Reissman, 1965). As adolescents develop alongside best friends, they increasingly engage in supportive turn-taking, which iteratively builds foundational social skills that facilitate intimacy; listening and supporting chief among those skills (Bauminger et al., 2008). Ultimately, the ability to engage in increasing self-disclosure when seeking support and dial back self-disclosure appropriately when providing support likely reflects healthy attachment between teens and their best friends (Mikulincer & Shaver, 2016).

Findings from this study suggest that development of self-disclosure in adolescence likely sets the stage for self-disclosure processes in adulthood (Sullivan, 1953/2013). In this sample, changes in

participants' disclosure to adult romantic partners was predicted by their best friends' disclosure in adolescence; such that individuals with higher-disclosing best friends increased in the amount they self-disclosed from adolescent peers to adult romantic partners. Repeated experiences with close others shape and reinforce beliefs and expectations about whether self-disclosure is appropriate, accessible, and useful in support-seeking contexts, and teens' interpersonal behaviors cascade from close friendships in adolescence to romantic relationships in adulthood (Oudekerk et al., 2015). In sum, these findings together support the conclusion that social contexts in adolescence significantly relate to both concurrent and future social behaviors, likely through the shaping of adolescents' expectations of themselves, others, and close relationships.

Hypothesis 4: Linking Self-Disclosure and Mental Health Across Time.

Significant correlations were identified among concurrent mental health symptoms and self-disclosure, such that concurrently, relatively high levels of anxious and depressive symptoms co-occurred with relatively high self-disclosure in both adolescence and adulthood. However, when looking to understand developmental interrelations among these constructs, significant autoregressive predictions among symptoms and self-disclosure identified no significant cross-lagged predictions.

Despite aggregated associations between mental health symptoms and self-disclosure, no cross-lagged associations arose to suggest that internalizing symptoms and self-disclosure share a predictable pattern of interrelatiohships. Mental health symptoms wax and wane, and minor fluctuations year-by-year may pose a challenge to identifying patterns and trajectories across time (Oquendo et al., 2004). For some, depression and anxiety may lead to increases in discussion and disclosure, if the internalizing experience prompts distress and outreach; however, for others, depression and anxiety leads to withdrawal and isolation, which are also part of anxious and depressive conditions (APA, 2022). Previoius work in non-clinical samples has suggested that intense socialization and discussing of problems has a complex relationship with mental health in adolescence. Co-rumination, or circular

problem-focused talk, has been repeatedly associated with increases in depressive and anxious symptoms for adolescents (Rose, 2002), however, other work has indicated that self-disclosure in these discussions does not mediate the association (Schwartz-Mette, 2012). This could reflect the link between self-disclosure and interpersonal competence; perhaps adolescents who strategically self-disclose in support-seeking contexts engage in less dead-end or unproductive rumination about problems. With respect to this study in particular, perhaps task framing plays some role. Participants were instructed to discuss a topic that they would like help, support, or advice on; even just the simple mind-set shift from "discuss a *problem*" to discussing advice and seeking support may lead to differences in the ways that adolescents engage with the task and internalize the experience.

This study did find signs of stability from adolescent mental health symtpoms to adult mental health symptoms, as well as from adolescent self-disclosure to adult self-disclosure. Although this is not sufficient evidence to characterize self-disclosure as a tool to address mental health symptoms, we again see evidence that functioning in adolescence establishes a meaningful baseline that sets the stage for future functioning. Although this study does not identify self-disclosure as a potential mediator of these developing symptoms, functioning in adolescence may be a meaningful metric for the development of symptoms and social behaviors into adulthood.

Hypothesis 5. Linking Self-Disclosure and Relational Functioning Across Time.

Adolescents in high-quality close relationships demonstrated greater than expected increases in self-disclosure from one year to the next, *and* adolescents who engage in high self-disclosure demonstrated greater than expected increases in relationship quality from one year to the next. Self-disclosure, with its links to intimacy and engagement, may be inherently encouraged, rewarding, and reinforced in high-quality relationships (Furman, 2018; Stern et al., 2021). When adolescents receive a positive response to their self-disclosure, they may be more likely to self-disclose again in the future; facilitating increased opportunity for practice negotiating emotionally vulnerable conversations.

Meanwhile, in lower-quality, unsupportive, and/or invalidating relationships, the vulnerability of self-disclosure may come at a cost, and adolescents may use less self-disclosure and feel less encouraged to engage in self-disclsoure in future interactions (see Hypothesis 7 for an investigation into specific conversational behaviors used by friends as they relate to self-disclosure; Stotsky et al., 2019). This interpretation fits with existing theories about social reinforcement and relationship-building; and this study builds on existing ideas by identifying true within-person components of social learning in this way, across six years of adolescence. Additionally, while a *lack* of association does not lend itself to interpretation, the combination of findings suggests that this process truly takes place within the adolescent's closest relationships, and does not reflect their relationship to peers, broadly.

Finally, when looking to predict from adolescence to adulthood, patterns of self-disclosure and relationship functioning are associated from adolescence to adulthood, but no additional, cross-lagged predictions were identified. Perhaps, again, we see that relationship functioning in adolescence establishes a meaningful baseline that sets the stage for future functioning, however, we do not find evidence for self-disclosure as a predictor of change in relationship quality, nor for relationship quality as predicting changing self-disclosure across relationships in the longer-term. Previous work has questioned whether the skills developed in same-gender friendships can directly translate to cross-gender romantic relationships, or if teens must adapt those skills as the focal relationship changes (Connolly et al., 2015). Findings from the current study suggest that developing interpersonal abilities in adolescence may lend itself to more evident support within a future romantic relationship; reinforcing the idea that skills developed in adolescent friendships are generalizable (Allen et al., 2020). Thus, this study adds to the existing work suggesting that interpersonal processes in adolescent friendships set the stage for relationship functioning in adulthood (Furman, 2018).

Hypothesis 6. Low-Disclosers and Long-Term Functioning.

This study found no evidence for concurrent or future mental health or relationship satisfaction challenges based on one's tendency to "low-disclose." In fact, treating self-disclosure as a continuous variable offered more developmental information than defining a subset of individuals who disclose relatively less than their peers more often. Of note, boys in this sample were more likely to be "low-disclosing," and disclosed in the bottom quartile 37% of the time they participated (in comparison to girls' 20%). Low-disclosing was not significantly associated with neighborhood quality, OXTR methylation (in a linear or quadratic manner), racial identity, racial minoritized status, or socioeconomic status.

We again find that boys are likely to disclose systematically less than girls on an aggregated measure, and appear to disproportionately appear in the bottom quartile of disclosure in this sample. While all of the same sociocultural explanations and nuances noted above apply to this way of framing this finding, boys who fall into the category of "low discloser" more often do not appear substantially more likely to struggle with mental and relational health in this sample. Perhaps, to the extent that it may reflect discernment and intentionality with the decision to self-disclose, occasionally offering low disclosure is relatively normative. Adolescents' ability to seek support and interact with others flexibly, and in a way that is attuned to their own needs, the needs of others, and the social context is one of the major developemntal tasks of adolescence (Hurrelman & Quenzel, 2018). Furthermore, we found that it was not typical in this sample to fall in the "low-disclosing" category *all times* or *never.* Over- or under-engaging with self-disclosure may be linked to poor relationship and mental health functioning (Schwartz-Mette, 2022); we do not observe this phenomenon in this sample.

Hypothesis 7. Role of Context.

Investigation into contexts that might promote self-disclosure included epigenetic predispositions, conversational contexts, and sociocultural contexts. Results indicated significant roles of interpersonal behaviors used by adolescents' best friends in supportive interactions, such that highly

engaged, valuing, and emotionally supportive interactions were associated with more self-disclosure. When looking from adolescence to adulthood, interactions were identified between four parent-reported neighborhood characteristics (riskiness, connectedness, deterioration and crime, and cohesion) and self-disclosure in adolescence, predicting amounts of self-disclosure in adult romantic relationships. No linear or quadratic associations were identified between an adolescent's self-disclosure and the methylation of their oxytocin receptor gene at sites -860, -924, and -934, as well as their gender, racial identity, racial minoritized status, familial socioeconomic status, neighborhood qualities. Self-disclosure was not associated with whether the same or a different friend participated in prior or subsequent years.

Best friends' behaviors when providing support to participants were highly and consistently related to the degree of self-disclosure demonstrated within observed interactions each year. Of note, the same coders assigned all of these values within-interaction, and as such, we cannot escape the potential of some inherent bias in that coding system. However, the behaviors described in the codes both empirically and intuitively describe behaviors that seem reasonably linked to an adolescent's willingness for vulnerability and intimacy with a best friend. Positive behaviors such as valuing, offering emotional support, and engaging when a teen seeks input or advice may encourage more intimate self-disclosure than some other behaviors. By communicating direct caring for one another, actively listening, and validating a friend's feelings, teens can facilitate rewarding and relieving experiences for their friends (Priem & Solomon, 2014).

With regard to all four measures of parent-reported neighborhood quality, adolescents whose parents described their neighborhood as relatively lower-risk and more-connected demonstrated greater stability in their levels of disclosing from adolescence to adulthood. Meanwhile, adolescents whose parents described their neighborhood as relatively higher-risk and less-connected demonstrated less stability. Together, this suggests that adolescent disclosure is more strongly linked to disclosure in

adulthood for adolescents whose parents perceive their neighborhood as relatively *lower risk*. In all models, this association was driven by a significant association between neighborhood characteristics and self-disclosure when neighborhoods were described as relatively *lower risk* (i.e., higher in cohesion and connectedness, lower in riskiness and deterioration/crime), and a non-significant relation of self-disclosure and neighborhood quality when that neighborhood quality was described as relatively *higher risk*. Said differently, these findings suggest that adolescents in relatively lower risk neighborhoods demonstrate more stability in their patterns of self-disclosure from adolescence to adulthood; perhaps linked to differences in early messaging around vulnerability, opportunities to engage with vulnerability, and safety and encouragement to do so with others (Cohen & Garcia, 2008; Gillespie et al., 2015). In contrast, adolescents who may have less access to such facilitated opportunities may progress through the development of self-disclosure differently than adolescents who do not have to manage the stressors of growing up in relatively higher-risk neighborhoods (Moran & Eckenrode, 1991).

However, it is important to note that these neighborhood differences reflect parents' *perceptions* of neighborhood characteristics, and that the range of neighborhood qualities reflects parents' perceptions of their neighborhood as it stands in Charlottesville, Virginia. Therefore, while predictions are identified based on relative reported safety, connectedness, cohesion, and riskiness, these patterns may not generalize to adolescents in a wide variety of contexts. Nonetheless, this finding is interpreted as meaningful in that it reflects parents *perceptions,* and therefore, potentially messaging around neighborhood safety, as well as the role of vulnerability and disclosure in that context. Adolescents' whose parents describe their neighborhood as relatively lower-risk and more highly connected tend to demonstrate more stability in their levels of self-disclosure long-term, potentially because parents who perceive their neighborhood context as more supportive may also encourage more vulnerability in their adolescents.

Limitations

Significant limitations of this study warrant consideration. Most importantly, we were unable to make causal inferences based on the interrelations observed here. Unobserved variables or processes may have and, indeed, likely did underlie the predictions identified by these models, including variables such as parent socialization, teens' relationships with siblings and other peers, and empathy, social skills, or personality traits known to influence social behavior such as neuroticism and agreeableness. Further, the observational measures used provide only a small window into adolescents' rich social lives, which undoubtedly vary across time, context, and interaction partners outside of the observed support task. The mental health, relationship development, and self-disclosure processes all certainly develop in reaction to the social learning processes that occur across *years* in adolescence. The current study operates under the assumption that these small windows into relational processes offer important, though incomplete information about how adolescents interact with their peers. Additionally, the study does not include any self-report variable regarding the extent to which adolescents perceive that they self-disclose. Perhaps, based on individuals' different experiences, what is observed as a "similar" level of self-disclosure may be experienced quite differently by two different participants.

Additionally, this study relies on adolescents' own self-report of several constructs: their mental health symptoms and relationship quality. It always remains possible that some adolescents simply demonstrate a tendency to report high levels of positive or negative framing, across the board. The study attempts to handle this challenge by gathering information from multiple reporters (observed and friend-report). Despite the variety in reporters, it is difficult to fully disentangle constructs that appear quite as inherently linked as perceived mental health and relationship quality; as such, our ability to address how each of these processes independently relates to self-disclosure is limited.

There are also several limitations related to the structure of this study. As with any cohort study, an increase in sample size would increase power to detect patterns of findings across time. In this study,

power was also modest to detect relations between variables and limited our ability to thoroughly investigate moderators and covariates in self-disclosure development. Data are also not fully independent, as participants were sampled from the same school; a limitation shared by any study conducted within a school environment where participants regularly interact with one another. In addition, the measures administered to close peers and romantic partners differed, and though chosen to be as similar as possible, this mismatch may have obscured some continuities (for example, different questionnaires are used to assess relationship quality in the friendship versus in the romantic relationship later). Additionally, where analyses consider participants' and their interaction partners' self-disclosure within *the same* interaction, the same coders are responsible for assigning scores to both members of the dyad; potentially inflating the similarity of the scores.

In terms of the sample, our findings are not generalizable to all dyads; for instance, the study does not examine any cross-gender adolescent friendships, any romantic relationships that do not identify as heterosexual, and any romantic relationships that were shorter than three months in duration or non-monogamous, despite the significant developmental role those relationships may play. Furthermore, this study does not consider the complexity of identity factors and intersectional powers that differently influence adolescents. This study *does* contain many dyads that consist of two individuals with different identities and does not account for the inherent power differences brought on by societal privilege associated with race, socioeconomic status, or neighborhood characteristics (Dunbar, 2015). This does not allow for consideration of the complex societal and interpersonal power dynamics that may differentially influence adolescents engaged in differently comprised dyads. Similar limitations apply to the measure of neighborhood characteristics, in that it reflects *relative* neighborhood qualities as perceived by parents. Future work might consider a wider range of sociocultural contexts and factors that reinforce or discourage vulnerability in adolescents, and how that fits differently and appropriately to different developmental contexts.

This study is also limited in its consideration of gender identity only along a binary, and future work should consider gender identities outside of this binary, as well as friendships and romantic relationships that are composed of different gender and sexual identities. Self-disclosure may develop differently depending on the types of stressors adolescents face and the extent of alternative sources of support and stress in their lives. Future work is also needed to better understand temporal nuances of this social development.

Future Directions

Ultimately, this study suggests several categories of research that may be fruitful for future study. The following is far from a comprehensive list of such future directions:

First, and perhaps most importantly, psychological science must continue to expand its consideration of the complex interplay of systemic and interpersonal power dynamics. Regarding studies like this one, future work should consider the costs and risks associated with vulnerability and support-seeking for adolescents from many backgrounds, holding many values, and with a variety of privileged and disadvantaged identities. Historically, and in this study, racial identity has been used as a proxy for a complex set of experiences and factors that influence human development and existence. As we continue to interrogate our existing systems and refine the ways that we describe and discuss the elements of society that change human experience (access to resources, the stress of chronic prejudice, even the relationship to research participation and interpretation), we must also continue to refine the ways we conduct empirical studies. Incorporating community members into these discussions will be imperative to ensure their perspective is truly represented in empirical work.

Secondly, with regard to alternative mechanisms that need to be considered to fully understand these findings: future studies could investigate the role of friendship network stability in contributing to or attenuating social learning and development across adolescence. Random intercepts, as implemented here, does not allow for investigating individual latent path moderation based on time-varying

covariates. Thus, this study does not consider changes in *year-by-year* associations based on best friendship stability within the larger developmental models. Nonetheless, accounting for changing best friendships over time may help disentangle more about the proposed social learning occurring across time and relationships. Furthermore, this study only captures the developmental impact of *one* source of support, the best friend, and past work has indicated that adolescents solicit different types of support from different close others in their lives, such as parents, teachers, and other classmates (Hombrados-Mendieta et al., 2012). Future work would be bolstered by considering the many sources of support and opportunities for self-disclosure in adolescence and across development.

Finally, this study does not offer any insight into the role of oxytocin through levels of methylation at three promising candidate sites. *OXTR*m has often been treated too simply, and researchers have recently cautioned others in the field about the risk of over-interpreting findings (Danoff et al., 2023). Thus, while this study finds no linear, quadratic, or moderating relationships, future work might consider the likely role of oxytocin in these types of affiliative bonding through different mechanisms; perhaps through measures of endogenous oxytocin in combination with OXTR methylation. Integrating biological mechanisms into our understanding of social learning processes may facilitate a more comprehensive understanding of adolescents' baseline propensities, developmental trajectories, and ultimate functioning into adulthood.

Summary and Conclusion

This study offers a longitudinal, observational investigation into self-disclosure within close relationships from age 13 to 29. Notwisthanding some significant limitations and remaining questions, this dissertation: characterized self-disclosure within individuals as it developed in their adolescent best friendships in the short- and long-term, identified links between relationship quality and engagement in self-disclosure, and noted the major roles of both immediate conversational context as well as neighborhood characteristics in facilitating adolecents' engagement in self-disclosure with their best

friend. Additionally, findings point to adolescence as a trajectory-setting time period: self-disclosure, relationship quality, and internalizing symptoms all demonstrated significant stability from adolescence to adulthood, even after accounting for major covariates often used to explain such stability.

In conclusion, adolescents learn about sharing and supporting from their friends. They learn to share more when conversations are safe and encouraging, to hold back when providing support to others, and to use self-disclosure as a tool for building closeness, connection, and support. Considering the natural human drive for connection and the potentially far-reaching consequences of isolation (Allen et al., 2017; Smith et al., 2004; Valtorta et al., 2016), work has continued to trend toward identifying and leveraging important skills and relational processes that might facilitate connection long-term (Wingspread, 2004). This study indicates that developing the capacity to use self-disclosure in adoelscence may set the stage for self-disclosing effectively throughout the lifespan, facilitating healthy and supportive relationships into adulthood.

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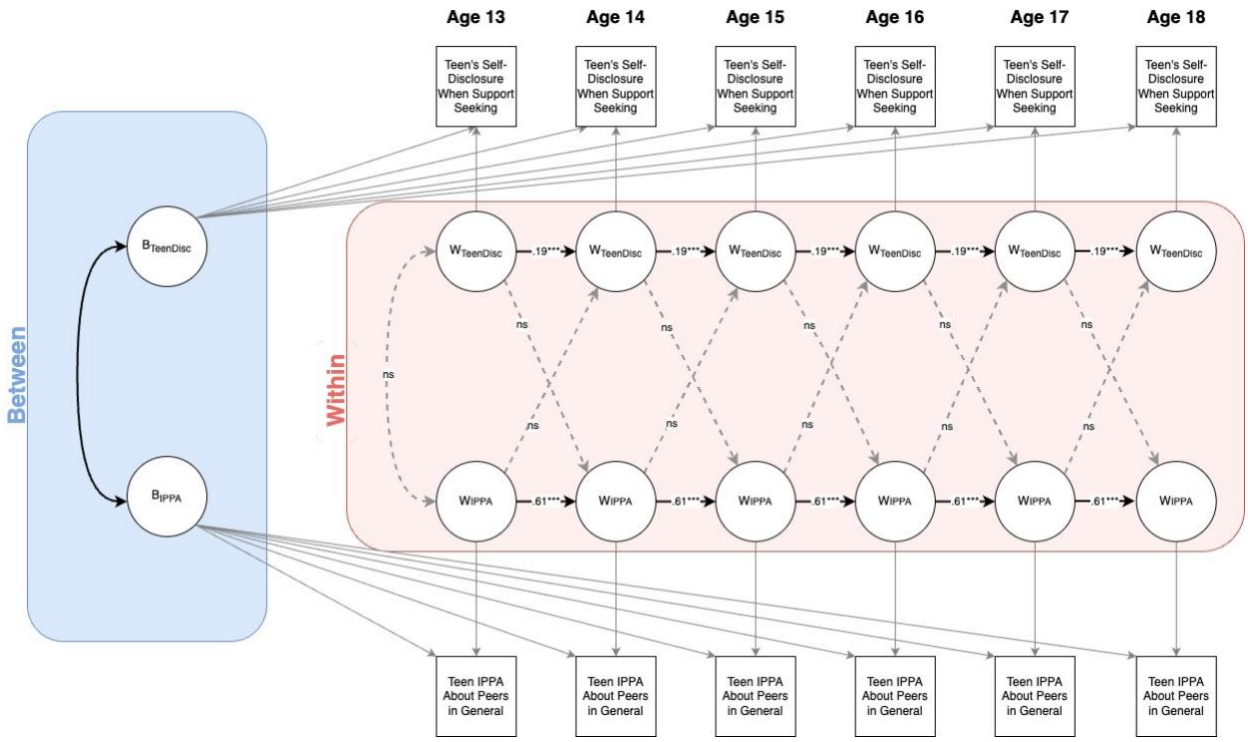
Supplemental Materials



Supplemental Figure 1. RICLPM of Self-Disclosure and Relationship Quality with General Peer Group. No significant cross-lags were identified between self-disclosure and general peer relationship quality (as assessed by the IPPA) from age 13 to 18.

Appendix

Appendix I. Supportive Behavior Task: Interaction Protocols and Instructions

Interaction Protocols

The KLIFF Peer Interactions are designed to measure the peer-adolescent relationship from the perspective of supportive behaviors and autonomy and relatedness in the dyad.

A brief overview:

1. Videotaped tasks are typically started when the target adolescent has completed his/her paper and pencil questionnaires.

2. The research assistant (RA) then initiates the Supportive Behavior Task (SBT). (See below for a more thorough explanation). The RA prompts the teen to think of a topic for the SBT, and when a topic is decided, the peer is brought into the taping room with the adolescent. The RA leaves the room and begins recording the interaction from behind a two-way mirror. The adolescent introduces the SBT topic and s/he and the peer are taped for 6 minutes discussing the topic. IMPORTANT: it is crucial to record the adolescent introducing the topic (for coding purposes). Usually one RA begins the video taping before the other RA has finished giving the instructions to the peer and adolescent.

3. At the end of 6 minutes, the RA goes back into the taping room and stops the interaction. The peer is asked to wait outside or in another room, while the adolescent is prompted to think of a topic for the Revealed Differences task; it is derived from the Marital Interaction Task, and coded using the Autonomy and Relatedness Coding System. See [separate manual] for the procedure involved in selecting the topic for the FIT.

4. Once the topic is decided, the RA and the adolescent make the revealed differences prep audio tape (see below). The peer is asked to come back into the video room, and again, one RA begins recording the interaction while the other RA is giving the instructions. To begin the interaction, the adolescent plays the prep tape. The interaction is timed for 8 minutes from the time beginning when the adolescent STOPS the prep tape, but again, it is important to begin recording before the playing of the prep tape for coding purposes.

5. Again, the RA goes back into the taping room and stops the interaction. The RA "checks in" with the parent and adolescent to make sure everything went OK, and then the peer is asked to go back to his/her other room.

Supportive Behavior Task Teen Interview Protocol: Coming Up With A Topic

The following is a suggested script for helping the target adolescent to come up with an SBT topic. It is not necessary to follow the script verbatim, but it is important to touch upon certain points:

- We want the adolescent to think of a topic that he or she wants advice or support about. This should NOT be an issue of contention between the teen and peer.

- Once the teen has selected a topic, reinforce that if s/he runs out of something to say about that topic, that it's ok. Encourage him/her to talk about his/her day, or another topic that s/he may have thought of during the discussion.

FIRST TRY: [This prompt is given when the teen is about ½ way through the paper and pencil questionnaires.] "One of the things we want to find out about is how people talk about problems that they are having. One of the things we will be doing here today is to talk about different ways teens talk about different problems that they have. What I'm going to be asking you to do is to tell me about something in your life that you think is kind of a problem. It doesn't have to be something really big, just something that has happened kind of recently, or some problem in your life."
If you and the teen don't come up with anything say "Ya, it's hard to think of these kinds of things. Well, we're going to move on to some other questions, but if you do think of anything later, let me know.

SECOND TRY: [Give when the teen is about ¾ of the way through the measures] "OK, remember earlier we were talking about different problems people might have. I wanted you to come up with some examples of things that have been bothering you, or problems in your life that you talk about with your friends, or parents, or even problems that you really don't share with anybody." Give the teen some examples:

Friendship issues
Romantic issues
Money
Etc.

If no luck, say "Ok, this time what I want you to do is to think of some things about today that might have bothered you, or that kind of went wrong. Can you think of anything? How about earlier this week? {Pry, probe, brainstorm}

THIRD TRY: [Give when the teen is finished with the measures] "What I want you to do now is to pretend that you could just snap your fingers, and change any three things about your life. What would those things be?" {Pry, probe, brainstorm}

If you don't come up with anything: "Ya, like I said before, I think this is a kind of hard thing to think about. I'll tell you what, why don't we move on for now, and we can think more about it later on."

**After you come up with a few ideas say something like, "That's great. Now, remember earlier I was telling you how we want to find out about how people talk about their problems. So, if you're comfortable with this, what we're going to do is have one of these things be something you talk about with your mom/dad. That will be one of the conversations that we video tape. {Pick one}

**If you could not get anything, as a last resort: "Well, those things are hard to think about. You did a great job trying to come up with something. Why don't we start something else now. What I would like you to do is to tell your friend about your day. Your job is to tell them about your day in as much detail as you can. Does that sound OK to you?"

Once you and the teen decide upon a topic, write the topic down on the SBT topic sheet.

Introducing and Doing the SBT Task

When the peer comes into the room, seat them on the couch with the adolescent. It is fine to make small talk at this time to make sure teen and peer are comfortable.

To introduce the task to the peer: "[Adolescent's name] has thought of a problem that he/she would like your advice or support about. We'd like to videotape the two of you discussing this problem for the next six minutes. We understand that six minutes can be a long time to talk about something, especially in front of a camera, but please try and keep talking until we ask you to stop. If you run out of things to say about the topic, you can talk about your day or another topic. Do you have any questions? Ok, when I leave the room, [Teen Name], please introduce your topic. I will be back in six minutes."

While one RA is giving these instructions, another RA should be behind the two-way mirror and begin recording. This way, we can be sure to capture the teen introducing his/her topic. Start timing the interaction just after the teen says his/her topic. Allow the tape to continue recording a little past 6 minutes just in case the tape cuts off at the beginning.

When six minutes is up, knock on the door to the interaction room to let the dyad know that they are finished. Go into the room and check-in to make sure that everything is OK.

Appendix II. Supportive Behavior Task: Self-Disclosure Coding Manual

Depth of Self-Disclosure

Self-disclosure includes information that is shared about oneself. **Self-disclosure may be assessed by asking the question, "Would a person feel embarrassed/uncomfortable if he/she were sharing this information with the average parent (for teens in parent tasks), with the average kid (for parents in parent tasks), or with the average same-aged-gendered peer in the teen's general circle of acquaintances (for adolescents in teen-peer tasks) or the typical romantic partner (for RP tasks)?"** Self-disclosed information includes private statements about oneself that would make the other person feel as though they know the speaker better. Don't score highly for statements that simply state what's already likely to be obvious to someone in the teen's circle of acquaintances, even if the teen hasn't told them. Thus, "I'm short." Might get points for implying, "I'm embarrassed about being short." But not for letting the close peer know that the teen is in fact short. However, DO score for things the teen says that they may have said previously to the person (i.e., even if the listener already knows something because the teen *previously* disclosed it, it still counts as being self-disclosing if repeated in the interaction). The greater the depth of the information that is disclosed, the more comfortable the other person is likely to feel about reciprocating the disclosure. Self-disclosure refers both to the topic and to what the person says about it. Willingness to ask questions that express your interests may be considered self-disclosing. Each disclosure (could be a statement or even an expression of affect (e.g., starting to cry) is coded independently, and the overall score is assigned based on the disclosure that reaches the highest level. **Score the highest level of self-disclosure as the score you assign.** Parents' setting rules are not considered to be self-disclosure, even if they are stated as an opinion. Persistence or lack of it would alter scores by + / - 1 point.

NOTE: The key is NOT whether the discloser feels embarrassed vs comfortable, it is how the typical person would be expected to feel in that situation. Ultimately, we want to know how VULNERABLE the disclosure leaves the other person to criticism, teasing, being written off, etc.

Affect: If a lot of affect is displayed, this can be part of what's being disclosed and be scored. Sometimes, the most disclosing thing might even be the affect more than the content (i.e. that I'm really worried about something may be more disclosing than what that something is). However, it's also possible for people to be highly self-disclosing without showing any real affect.

Controversial: A statement is judged controversial in terms of how controversial it is socially (i.e. on what is the likelihood that the other person might strongly disagree). Just because a statement is an area of disagreement within the dyad does not mean it is necessarily controversial. The following is an example: Teen to Peer: "I think you're selfish" is controversial in that dyad, but wouldn't be controversial if you told someone else you thought the peer was selfish and hence wouldn't be scored.

Vulnerable: With vulnerability assess the degree to which the person would be made vulnerable sharing this information with the average peer, teen, or parent (as applicable). Vulnerability is assessed by the degree of social vulnerability of the statement, not vulnerability within the dyad. Just because a statement is an area of disagreement within the dyad does not mean it makes the person vulnerable. For example, teen presents problem and parent responds, "I don't think that problem is a big deal". While one might argue that might make the individual vulnerable by potentiating disagreement that is not what is assessed with the vulnerability in this code.

NOTE: Criticism Caveat - Saying something critical or being angry about the other person typically minimizes your own vulnerability to such an extent that we code it as a "0" even though it might seem to fit elsewhere. Some angry statements might not get scored at all (i.e. attacks) and others could be scored highly (to the extent they reflected great vulnerability, i.e., by implicitly conveying a sense of hurt or upset, even though they are covering it up or minimizing it with anger).

Do not score down just because someone is saying something easily within the relationship; nor do you score up if they seem anxious with what they are disclosing.

Behaviors that <u>minimize</u> the vulnerability of what's expressed will bring scores down from where they otherwise would be.

***If a feeling or like is expressed only <u>implicitly</u>* this might also bring down a score from where it otherwise would be. The key in both cases is how vulnerable does what's actually *communicated* make the person.**

0 Brief or non-controversial likes and dislikes or wants or needs are expressed. (i.e. "I like video games."). Talking about your day in a way that doesn't tap into higher scores.

EXAMPLE: Teen to Peer: "Susan came and told me she had this problem (explains problem). What would you do if you were her?"
EXAMPLE: Parent to Teen: "I'm worried that you're gonna not be very happy with your grades if you keep going like this" (said without any real evidence of anxiety, but more as a statement the kids' behavior is out of line).

0.5 EXAMPLE: "Boy, I'm gonna fail this Spanish test."
EXAMPLE: "I need some money to buy some sneakers, I don't know how to get it." (not about poverty, just about how to raise money)
EXAMPLE: Teen to Parent: "I'm annoyed with my sister for picking on me."
EXAMPLE: Parent to Teen: "I'm worried that you're being controlled by your boyfriend" (said without any real evidence of anxiety, but more as a statement the kids' behavior is out of line). [*NOTE: in general, parental worries about their child are not that disclosing, and can range from non-disclosing expressions of wanting a kid to change behavior, to moderately disclosing statements of concern about hot topics where real anxiety is conveyed.]*

1 Personal opinions, not necessarily controversial but still going out on a limb a bit. Feelings that are non-controversial and pretty readily expressed (or stated very implicitly). There may be a little bit of affect, but it is run of the mill affect.
OR
Facts about self: some potential to be embarrassing One could make fun of someone for saying this, but probably wouldn't.

EXAMPLE: "I'm worried that I'm gonna fail this Spanish test." Said matter of factly, as if it wasn't a big deal. This adds an element of emotion to the .5 example above)
EXAMPLE: Peer to Teen: Peer is talking about a friend who keeps accusing her of flirting with her boyfriend. "I'm getting tired of it." Expressed with mild annoyance.

EXAMPLE: Teen to Peer: Teen says "I don't like coach, he gets on my nerves." Teen readily expresses his annoyance with coach.
EXAMPLE: Teen to Parent: "Do you think I could get into any college with my grades?"
EXAMPLE: Parent to Teen: "I'm worried that you're gonna find yourself pregnant one day" (said without any real evidence of anxiety, but more as a statement the kids' behavior is out of line). [this is like the .5 example but with a more charged topic]

1.5 Here the speaker is going out a little more on the limb;
OR
The information may be a bit more embarrassing, but it is presented in a way that minimizes the vulnerability.

EXAMPLE: Teen to Parent: "He kind of makes me feel uncomfortable" (teen statement about a potential employer that parent knows)
EXAMPLE: Teen to Peer: "This girl's been harassing me and I think she likes me" (<u>at age 13,</u> because at this age, we're taking this to mean "I'm getting pushed into romantic stuff and its uncomfortable, and being uncomfortable is not that self disclosing.")
EXAMPLE: Peer to Teen: Peer says, " You'll like him, he's short, but cute." (This really expressed a personal opinion, plus the sentiment: I'm a little worried you won't like him.)
EXAMPLE: Teen at age 20: "I'm really worried about a lot of stuff with my cousin" (said with real feeling).

If someone in essence says "me too" to a highly disclosing statement, without adding other information, it usually will get a maximum of a 1.5 no matter how said or in what context (except in cases where the material is extremely self-disclosing—e.g., revealing a history of sexual abuse).

2 Relatively controversial opinions. Expressing feelings that are socially acceptable but not always readily expressed. Also coded here are things that might be a bit more embarrassing, things that someone might think the speaker is a little silly for saying.

EXAMPLE: Peer to Teen: Teen anxiously says, "I don't know my way around the school. How are we supposed to know where the classrooms are?"
EXAMPLE: Parent to Teen: The essence of the conversation is: "I'm worried about you having sex because there are a lot of diseases out there" (said with the anxiety being clear, *not* said as simply a way of saying "don't have sex.").

EXAMPLE: Parent: "I've learned that some times just liking someone is more fun than going further with them."

**Higher than a 2 is getting into areas that are not commonly shared with strangers or others and are more difficult to say. **
[NOTE: in general, parental worries about their child are not that disclosing, and can range from non-disclosing expressions of wanting a kid to change behavior, to moderately disclosing statements of concern about hot topics where real anxiety is conveyed.]

2.5 EXAMPLE: Teen to Parent: "Larry keeps picking on me" (w/ no follow-up). (a low 2.5)

EXAMPLE: Teen to Peer: “Dave told me I was fat and looked like I was pregnant” (said in a light tone). (a high 2.5)

3 Expressing strong feelings that are less socially acceptable (e.g., embarrassed (for 13 year old); for age 21: “I feel like I need more of your time right now.”).
OR
Revealing facts about self that are a little strange to reveal to a stranger, a little potentially embarrassing. The information that is revealed has some emotional content and seems to be important to the speaker.

EXAMPLE: Teen to Parent: “Kids are teasing me.” (Worse than Larry picking on me, because implies something more embarrassing, i.e. a *group* is making fun of me vs. 1 person acting like a jerk).
EXAMPLE: Teen to Parent “I was worried about you when you fell and the ambulance came to get you.” (for 13 year old)
EXAMPLE: Teen to Mother: “Dad doesn’t want to talk to me, he never says anything to me, he doesn’t understand me.”

3.5 EXAMPLE: Teen to Peer: “You’re my best friend AND I really care about our friendship” (said with feeling) (second half must be either explicitly stated or unmistakably implied).

4 Areas not commonly shared even between somewhat close friends.
Expressing strong feelings (other than socially acceptable feelings, such as anger at something outrageous), e.g., sadness, fear, loneliness, anxiety.
OR
Describing experiences or facts about self that would be very strange (and embarrassing) to tell a stranger.

EXAMPLE: Teen to Peer “My parents are divorced, they fight in front of me, it’s so embarrassing, they drag me into it.”
EXAMPLE: (Peers, not parents or romantic partners): “I love you and I really care about you.”

Appendix III. Interpersonal Competency Questionnaire Self-Disclosure Scale (Peer-Report)

Please read each of the following items and decide how good **[Participant]** would be at each of them.

Poor at this; would be so uncomfortable and unable to handle this situation that it would be avoided if possible

Fair at this; would feel uncomfortable and would have some difficulty handling this situation.

O.K. at this; would feel somewhat uncomfortable and have a little difficulty handling this situation.

Good at this; would feel quite comfortable and able to handle this situation.

Extremely good at this; would feel very comfortable and could handle this situation well.

How good is [Participant] at…	**Poor at this**	**Fair at this**	**OK at this**	**Good at this**	**Extremely good at this**
Telling people private things about him/herself?	1	2	3	4	5
Letting someone see his/her sensitive side?	1	2	3	4	5
Telling someone embarrassing things about his/herself?	1	2	3	4	5
Opening up and letting someone get to know everything about his/herself?	1	2	3	4	5
Sharing personal thoughts and feelings?	1	2	3	4	5
Telling soeone his/her true feelings about other people?	1	2	3	4	5
Telling someone what he/she personally thinks about important things?	1	2	3	4	5
Telling someone what he/she does not want everyone to know?	1	2	3	4	5

Appendix IV. Childhood Depression Inventory Measure

Kids sometimes have different feelings and ideas. From each of the group of three sentences pick one sentence that describes you best **in the past two weeks**. There is no right or wrong answer. Fill in the bubble corresponding to your choice.

1	O	I am sad once in a while.
	O	I am sad many times.
	O	I am sad all the time.
2	O	Nothing will ever work out for me.
	O	I am not sure if things will work out for me.
	O	Things will work out for me OK.
3	O	I do most things OK.
	O	I do many things wrong.
	O	I do everything wrong.
4	O	I have fun in many things.
	O	I have fun in some things.
	O	Nothing is fun at all.
5	O	I am bad all the time.
	O	I am bad many times.
	O	I am bad once in a while.

6	O	I think about bad things happening to me once in a while.
	O	I worry that bad things will happen to me.
	O	I am sure that terrible things will happen to me.
7	O	I hate myself.
	O	I do not like myself.
	O	I like myself.
8	O	All bad things are my fault.
	O	Many bad things are my fault.
	O	Bad things are not usually my fault.
9	O	I do not think about killing myself.
	O	I think about killing myself but I would not do it.
	O	I want to kill myself.
10	O	I feel like crying every day.
	O	I feel like crying many days.
	O	I feel like crying once in a while.

11	O	Things bother me all the time.
	O	Things bother me many times.
	O	Things bother me once in a while.
12	O	I like being with people.
	O	I do not like being with people many times.
	O	I do not want to be with people at all.
13	O	I cannot make up my mind about things.
	O	It is hard to make up my mind about things.
	O	I make up my mind about things easily.
14	O	I look OK.
	O	There are some bad things about my looks.
	O	I look ugly.
15	O	I have to push myself all the time to do my schoolwork.
	O	I have to push myself many times to do my schoolwork.
	O	Doing schoolwork is not a big problem.
16	O	I have trouble sleeping every night.

	O	I have trouble sleeping many nights.
	O	I sleep pretty well.
17	O	I am tired once in a while.
	O	I am tired many days.
	O	I am tired all the time.
18	O	Most days I do not feel like eating.
	O	Many days I do not feel like eating.
	O	I eat pretty well.
19	O	I do not worry about aches and pains.
	O	I worry about aches and pains many times.
	O	I worry about aches and pains all the time.
20	O	I do not feel alone.
	O	I feel alone many times.
	O	I feel alone all the time.
21	O	I never have fun at school.
	O	I have fun at school only once in a while.

	O	I have fun at school many times.
22	O	I have plenty of friends.
	O	I have some friends but I wish that I had some more.
	O	I do not have any friends.
23	O	My schoolwork is alright.
	O	My schoolwork is not as good as before.
	O	I do very badly in subjects I used to be good in.
24	O	I can never be as good as other kids.
	O	I can be as good as other kids if I want to.
	O	I am just as good as other kids.
25	O	Nobody really loves me.
	O	I am not sure if anybody loves me.
	O	I am sure that somebody loves me.
26	O	I usually do what I am told.
	O	I do not do what I am told most times.
	O	I never do what I am told.

27	O	I get along with people.
	O	I get into fights many times.
	O	I get into fights all the time.

Appendix V. Beck Depression Inventory Measure

Circle the answer that best describes how you have been feeling in the **past week, including today**. If several statements within a group seem to apply equally well, circle the number for both.

1	**0**	I do not feel sad.
	1	I feel sad.
	2	I am sad all the time and I can't snap out of it.
	3	I am so sad or unhappy that I can't stand it.
2	**0**	I am not particularly discouraged about the future.
	1	I feel discouraged about the future.
	2	I feel I have nothing to look forward to.
	3	I feel that the future is hopeless and that things cannot improve.
3	**0**	I do not feel like a failure.
	1	I feel I have failed more than the average person.
	2	As I look back on my life, all I can see is a lot of failures.
	3	I feel I am a complete failure as a person.
4	**0**	I get as much satisfaction out of things as I used to.
	1	I don't enjoy things the ways I used to.
	2	I don't get real satisfaction out of anything anymore.
	3	I am dissatisfied or bored with everything.
5	**0**	I don't feel particularly guilty.
	1	I feel guilty a good part of the time.
	2	I feel quite guilty most of the time.
	3	I feel guilty all of the time.
6	**0**	I don't feel I am being punished.
	1	I feel I may be punished.
	2	I expect to be punished.
	3	I feel I am being punished.
7	**0**	I don't feel disappointed in myself.
	1	I am disappointed in myself.
	2	I am disgusted with myself.
	3	I hate myself.
8	**0**	I don't feel I am any worse than anybody else.

	1	I am critical of myself for my weaknesses or mistakes.
	2	I blame myself all the time for my faults.
	3	I blame myself for everything bad that happens.
9	**0**	I don't have any thoughts of killing myself.
	1	I have thoughts of killing myself, but I would not carry them out.
	2	I would like to kill myself.
	3	I would kill myself if I had the chance.
10	**0**	I don't cry any more than usual.
	1	I cry more now than I used to.
	2	I cry all the time now.
	3	I used to be able to cry, but now I can't cry even though I want to.
11	**0**	I am no more irritated now than I ever am.
	1	I get annoyed or irritated more easily than I used to.
	2	I feel irritated all the time now.
	3	I don't get irritated at all by the things that used to irritate me.
12	**0**	I have not lost interest in other people.
	1	I am less interested in other people than I used to be.
	2	I have list most of my interest in other people.
	3	I have lost all of my interest in other people.
13	**0**	I make decisions about as well as I ever could.
	1	I put off making decisions more than I used to.
	2	I have greater difficulty in making decision than before.
	3	I can't make decisions at all anymore.
14	**0**	I don't feel I look any worse than I used to.
	1	I am worried that I am looking old or unattractive.
	2	I feel that there are permanent changes in my appearance that make me look unattractive.
	3	I believe that I look ugly.
15	**0**	I can work about as well as before.
	1	It takes an extra effort to get started at doing something.
	2	I have to push myself very hard to do anything.
	3	I can't do any work at all.

16	**0**	I can sleep as well as usual.
	1	I don't sleep as well as I used to.
	2	I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
	3	I wake up several hours earlier than I used to and cannot get back to sleep.
17	**0**	I don't get more tired than usual.
	1	I get tired more easily than I used to.
	2	I get tired from doing almost anything.
	3	I am too tired to do anything.
18	**0**	My appetite is no worse than usual.
	1	My appetite is not as good as it used to be.
	2	My appetite is much worse now.
	3	I have no appetite at all anymore.
19a	**0**	I haven't lost much weight, if any, lately.
	1	I have lost more than 5 pounds lately,
	2	I have lost more than 10 pounds lately.
	3	I have lost more than 15 pounds lately.
19b		I am purposely trying to lose weight by eating less.
	1	YES
	2	NO
20	**0**	I am no more worried about my health than usual.
	1	I am worried about physical problems such as aches and pains, or upset stomach, or constipation.
	2	I am very worried about physical problems and it's hard to think of much else.
	3	I am so worried about physical problems that I cannot thing about anything else.
21	**0**	I have not noticed any recent change in my interest in sex.
	1	I am less interested in sex than I used to be.
	2	I am much less interested in sex now.
	3	I have lost interest in sex completely.

Appendix VI. Beck Anxiety Inventory

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by each symptom during the PAST WEEK, INCLUDING TODAY, by filling in the corresponding bubble next to each symptom.

	Not At All	Mildly (It Did Not Bother Me Much)	Moderately (It Was Very Unpleasant, But I Could Stand It)	Severely (I could barely stand it)
1. Numbness or tingling.	O	O	O	O
2. Feeling hot.	O	O	O	O
3. Wobbliness in legs.	O	O	O	O
4. Unable to relax.	O	O	O	O
5. Fear of the worst happening.	O	O	O	O
6. Dizzy or lightheaded.	O	O	O	O
7. Heart pounding or racing.	O	O	O	O
8. Unsteady.	O	O	O	O
9. Terrified.	O	O	O	O
10. Nervous.	O	O	O	O
			O	

11. Feelings of choking.	O	O		O
12. Hands trembling.	O	O	O	O
13. Shaky.	O	O	O	O

14. Fear of losing control.	O	O	O	O
15. Difficulty breathing.	O	O	O	O
16. Fear of dying.	O	O	O	O
17. Scared.	O	O	O	O
18. Indigestion of discomfort in abdomen.	O	O	O	O
19. Faint.	O	O	O	O
20. Face flushed.	O	O	O	O
21. Sweating (not due to heat).	O	O	O	O

Appendix VII. State Trait Anxiety Inventory (Trait Subscale Only)

Below are a number of statements which people have used to describe themselves. Read each statement, and then check the appropriate box to indicate how you GENERALLY feel. There are no right or wrong answers. Do not spend too much time on any one.

	Almost Never	Sometimes	Often	Almost Always
1. I feel pleasant.	□	□	□	□
2. I tire quickly.	□	□	□	□
3. I feel like crying.	□	□	□	□
4. I wish I could be as happy as others seem.	□	□	□	□
5. I am losing out on things because I can't make up my mind soon enough.	□	□	□	□
6. I feel rested.	□	□	□	□
7. I am "cool, calm, and collected".	□	□	□	□
8. I feel difficulties are piling up so that I cannot overcome them.	□	□	□	□
9. I worry too much over something that doesn't really matter.	□	□	□	□
10. I am happy.	□	□	□	□
11. I am inclined to take things hard.	□	□	□	□
12. I lack self-confidence.	□	□	□	□
13. I feel secure.	□	□	□	□
14. I try to avoid facing a crisis or difficulty.	□	□	□	□
15. I feel blue.	□	□	□	□
16. I am content.	□	□	□	□
17. Some unimportant thought runs through my mind and bother me.	□	□	□	□
18. I take disappointments so strongly that I can't put them out of my mind.	□	□	□	□
19. I am a steady person.	□	□	□	□
20. I get in a state of tension or turmoil as I think over my recent concerns and interests.	□	□	□	□

Appendix VIII. Friendship Quality Questionnaire

For each item, decide how true the statement is for your friendship with your friend here with you today.
Fill in the bubble corresponding to your choice.

	Not At All True	A Little True	Somewhat True	Pretty True	Really True
1. We always spend free time at school together.	O	O	O	O	O
2. We get mad at each other a lot.	O	O	O	O	O
3. He tells me I am good at things.	O	O	O	O	O
4. He sticks up for me if others talk behind my back.	O	O	O	O	O
5. We make each other feel important and special.	O	O	O	O	O
6. We always pick each other as partners for things.	O	O	O	O	O
7. He says "I'm sorry" if he hurts my feelings.	O	O	O	O	O
8. He sometimes says mean things about me to other kids.	O	O	O	O	O
9. He has good ideas about things to do.	O	O	O	O	O
10. We talk about how to get over being mad at each other.	O	O	O	O	O
11. He would like me even if others didn't.	O	O	O	O	O

	A Little True	Some what True	Pretty True	Really True	Not At All True
12. He tells me I am pretty smart.	O	O	O	O	O
13. We always tell each other our problems.	O	O	O	O	O
14. He makes me feel good about my ideas.	O	O	O	O	O
15. I talk to him when I'm mad about something that has happened to me.	O	O	O	O	O
16. We help each other with chores a lot.	O	O	O	O	O
17. We do special favors for each other.	O	O	O	O	O
18. We do fun things together a lot.	O	O	O	O	O
19. We argue a lot.	O	O	O	O	O
20. We can count on each other to keep promises.	O	O	O	O	O
21. We go to each others' houses.	O	O	O	O	O
22. We always play together or hang out together.	O	O	O	O	O

	Not At All True	A Little True	Somewhat True	Pretty True	Really True
23. He gives me advice with figuring things out.	O	O	O	O	O
24. We talk about the things that make us sad.	O	O	O	O	O
25. We make up easily when we have a fight.	O	O	O	O	O
26. We fight a lot.	O	O	O	O	O
27. We talk about how to make ourselves feel better, if we are mad at each other.	O	O	O	O	O
28. We share things with each other.	O	O	O	O	O
29. He does not tell others my secrets.	O	O	O	O	O
30. We bug each other a lot.	O	O	O	O	O
31. We come up with good ideas on ways to do things.	O	O	O	O	O
32. We loan each other things all the time.	O	O	O	O	O

	Not At All True	A Little True	Somewhat True	Pretty True	Really True
33. He helps me so I can get done quicker.	O	O	O	O	O
34. We get over our arguments really quickly.	O	O	O	O	O
35. We count on each other for good ideas about how to get things done.	O	O	O	O	O
36. He doesn't listen to me.	O	O	O	O	O
37. We tell each other private things.	O	O	O	O	O
38. We help each other with schoolwork a lot.	O	O	O	O	O
39. We tell each other secrets.	O	O	O	O	O
40. He cares about my feelings.	O	O	O	O	O

Appendix IX. Network of Relationships Inventory

We are interested in the different kinds of things young adults experience in romantic relationships. Please answer the following questions as they relate to ###. Please check the box that best describes your relationship:

	Never/ None	A Little	Somewhat	Quite a Bit	Extremely Much
1. How much free time do you spend with this person?	☐	☐	☐	☐	☐
2. How much do you play around and have fun with this person?	☐	☐	☐	☐	☐
3. How often do you go places and do enjoyable things with this person?	☐	☐	☐	☐	☐
4. How much do you and this person get upset with or mad at each other?	☐	☐	☐	☐	☐
5. How much do you and this person disagree and quarrel?	☐	☐	☐	☐	☐
6. How much do you and this person argue with each other?	☐	☐	☐	☐	☐
7. How much does this person teach you how to do things that you don't know how to do?	☐	☐	☐	☐	☐
8. How much does this person help you figure out or fix things?	☐	☐	☐	☐	☐
9. How often does this person help you when you need to get something done?	☐	☐	☐	☐	☐
10. How much do you and this person get on each other's nerves?	☐	☐	☐	☐	☐
11. How much do you and this person get annoyed with each other's behavior?	☐	☐	☐	☐	☐
12. How much do you and this person hassle or nag each other?	☐	☐	☐	☐	☐
13. How much do you talk about everything with this person?	☐	☐	☐	☐	☐
14. How much do you share your secrets and private feelings with this person?	☐	☐	☐	☐	☐
15. How much do you talk to this person about things that you don't want others to know?	☐	☐	☐	☐	☐
16. How much do you help this person with things s/he can't do by him/herself?	☐	☐	☐	☐	☐
17. How much do you protect and look out for this person?	☐	☐	☐	☐	☐
18. How much do you take care of this person?	☐	☐	☐	☐	☐
19. How much does this person like or love you?	☐	☐	☐	☐	☐

20. How much does this person really care about you?	☐	☐	☐	☐	☐
21. How much of a strong feeling of affection (loving or liking) does this person have toward you?	☐	☐	☐	☐	☐
22. How much does this person treat you like you're admired or respected?	☐	☐	☐	☐	☐

23. How much does this person treat you like you're good at many things?	☐	☐	☐	☐	☐
24. How much does this person like or approve of the things you do?	☐	☐	☐	☐	☐
25. How much do you tell the other person what to do (more than they tell you what to do)?	☐	☐	☐	☐	☐
26. Between you and this person, how much do you tend to be the boss in the relationship?	☐	☐	☐	☐	☐
27. In your relationship with this person, how much do you tend to take charge and decide what should be done?	☐	☐	☐	☐	☐
28. How sure are you that this relationship will last no matter what?	☐	☐	☐	☐	☐
29. How sure are you that your relationship will last in spite of fights?	☐	☐	☐	☐	☐
30. How sure are you that your relationship will continue in the years to come?	☐	☐	☐	☐	☐
31. How often do you turn to this person for support with personal problems?	☐	☐	☐	☐	☐
32. How often do you depend on this person for help, advice, or sympathy?	☐	☐	☐	☐	☐
33. When you are feeling down or upset, how often do you depend on this person to cheer you up?	☐	☐	☐	☐	☐
34. How often does this person point out your faults or put you down?	☐	☐	☐	☐	☐
35. How often does this person criticize you?	☐	☐	☐	☐	☐
36. How often does this person say mean or harsh things to you?	☐	☐	☐	☐	☐
37. How often does this person get his/her way when you two do not agree about what to do?	☐	☐	☐	☐	☐
38. How often does this person end up being the one who makes the decisions for both of you?	☐	☐	☐	☐	☐
39. How often does this person get you to do things his/her way?	☐	☐	☐	☐	☐
40. How satisfied are you with your relationship with this person?	☐	☐	☐	☐	☐
41. How good is your relationship with this person?	☐	☐	☐	☐	☐

42. How happy are you with the way things are between you and this person?	☐	☐	☐	☐	☐
43. How much does this person punish you?	☐	☐	☐	☐	☐
44. How much does this person discipline you for disobeying him/her?	☐	☐	☐	☐	☐
45. How much does this person scold you for doing something you are not supposed to do?	☐	☐	☐	☐	☐

Appendix X. Supportive Behavior Task Coding: Best Friend's Engagement

This code captures the extent to which each member of the dyad appears to be connected and engaged with the other person and should be assessed independently of the topic discussed. These aspects of engagement are assessed independently of the support that is sought out or provided as a part of the task. Rather, this category focuses in part upon the degree to which a person is engaging with the other person (O) and demonstrating (explicitly and/or implicitly, with words and/or gestures) that they are paying close attention to what O is saying. Persons also show that they are engaged and interested in what O is saying by following up on what a person says (whether agreeing or disagreeing), leaving O time to talk, asking questions about the topic, and listening to what O has to say. In addition to verbal signs of engagement, a person can demonstrate engagement non-verbally with eye-contact, body posture, head movements (i.e. nodding, shaking head, etc.), and facial expressions. A person is fully engaged only if they are both communicating and sensitive to what O is communicating.

The code for engaged is based on both the amount and quality of engagement. The overall code should be based on an intuitive average of the interaction. Scores ARE NOT based on the highest level reached. For example, if someone was at the 0 level for the first 2/3 of the discussion, but then reached the 2.5 level for the last 1/3 of the interaction, that person would probably be in the .5 or 1 range.

**Scores in the 0 - 2 range should be assigned when the tone of the interaction does not indicate any true connection. There may be listening and interacting occurring, but in the absence of any demonstrable efforts to connect with or understand the other person. **

0 Person is looking down or away, little or no eye contact, completely ignoring or not responding to other person, and/or cutting other person off or leaving them no time to speak, looking bored/staring blankly, and/or empty "yeah" responses. Body posture generally turned away from O. The person keeps the interaction going minimally, but still shows no or very few signs of interest in what O is saying

.5 There is at least some response to O, after hearing them. This should be assessed beyond the presentation of the problem and simple clarifying answers at the very beginning of the task (i.e., after the first 2-3 exchanges). Body posture generally turned away from O. Person does not seem to be interested in what the other person is saying (mostly yes/no responses). Person participates in conversation (i.e. statements on same topic), but never addressing the content of what the other person says. Interaction is marked by "mostly unresponsive stories, lectures or monologues."

1 Person generally follows conversation, but does not usually take into account what other person is saying in formulating their reply. Person seems to be minimally interested in the other person's statements (showing enough interest to put some content into responses). Statements may occasionally (i.e. once or twice) respond to the content of what the other person is saying, but for the most part content is ignored (they should be doing more than just giving information in response to a questions or answering yes/no). Occasional eye contact.

1.5 Person is attentive and interacting, consistently displaying some interest, and minimally demonstrating that they are hearing the major content of the other person's

statements. Shows some interest in the conversation, though only concerning minor or trivial points. Some eye contact.

2 Attentive interaction, evidenced in the form of questions or other signs of connection/interest below, though questions are mainly intended to respond, and it is not apparent that the person is seeking to understand the content of the individual's speeches. Responsive body-posture and head movement (nodding in agreement, for example). Eye contact is more consistent.
There are inconsistent efforts to understand what the other person is attempting to communicate (i.e. the effort is not persistent, or the quality of the effort to understand is poor)
Back and forth conversation (Each response builds on what the other person just said, not just turn-taking, but real *dialogue).* (Though not necessarily a very meaningful topic).

NOTE: To score above a 2: must have qualities listed under 2.5 below. Additionally, how many of those qualities are present largely determines the score.

Scores in the 2.5 - 4 range are assigned when the tone of the interaction does reflect some effort to connect with the other person (and beyond just being interested in the topic). Efforts to connect with the other person may be evidenced by trying to understand their point of view, showing interest in their feelings and experiences, and sharing experiences that make it clear to O that they have heard the important part of what O has said. Higher levels of responsiveness, including both verbal and nonverbal responsiveness, must be demonstrated to reach this range.

"2+ Statements": Signs of connection/interest/ might include the following *in addition to a solid 2-level interaction*:

- finishing O's sentences in a good way
- deep stories building upon stories (see examples below for what counts in this range).
- comments reflecting having heard and understood what O just said.
- evidence of seeing O's point of view OR trying to understand O's comments
- responding with real interest OR some degree of enthusiasm to O's point of view or comments
- open ended questions about O's feelings or suggestions (truly open-ended q's get more credit than clarifying questions, even if these are somewhat open ended in form).
- questions demonstrating a genuine interest in the feelings and experiences or comments
- Seeker: could be demonstrated by strong effort to make sure other person understands what you're saying (not in the sense of trying to be persuasive or strongly communicative, but more in the sense of really tuning in to whether the listener is actually following, and what exactly the listener is taking from the conversation).
- Seeker: very clear interest in how the other person responds… i.e. wanting to have a real back and forth dialogue (examples: following up on something supporter says)… NOT just answering simple supporter questions.

2.5 Person is clearly participating and paying attention consistently and displaying or communicating efforts to understand the other person's point of view with 1 or 2 of the above signs of connection/interest. [Distinction from here up to a 4 is between just paying attention and really trying to tune in to other person's thinking.]

***Scores above a 3 are assigned when the individual is not only just paying attention to the content of the other's statements, but is also clearly focused on and very connected to the other person. The individual is attending to the other as well as offering additional comments that respond to the other's statements.

3 Effort to connect with other person is present
AND/OR
Is enough to be a noteworthy feature of at least part of the discussion.
AND/OR
There is a somewhat consistent effort to maintain a real connection to the other person that goes well beyond just being interested in the topic, however, there is only a somewhat of an attempt to obtain a greater/deeper understanding of the situation.
OR
The person demonstrates mostly consistent interaction/engagement with the other person, but uses more than 2 of the connection/interest signs listed above (but not very much more).

3.5 There is an overall (mostly) consistent effort to maintain engagement with the other person. The difference in this score is marked by signs of real connection/interest demonstrated during the interaction.

4 Verbal and non-verbal behavior are mostly consistent with each other and with an attitude of connectedness with other person (i.e. most generally facing each other with good eye contact). The individual demonstrates responsiveness to the other person's statements by following-up on the content of his/her statements. Overt signs of connection and interest do not have to be continuously displayed, but they should be displayed quite frequently.
NOTE: A person need not be completely engaged/interested to receive a "4". But effort to understand and communicate this understanding should be a strong feature of most of the discussion.[1]
The person maintains consistent engagement during almost all of the interaction with the other person AND demonstrates real connection/interest/depth

Appendix XI. Supportive Behavior Task: Best Friend's Emotional Support Provided

Emotional support focuses on support that attempts to understand and support the feelings raised by the Seeker. Supporters can show emotional support by:

- **Validating**: Statements that clearly indicate you get the feelings.
  EXAMPLE:
  Teen: "That teacher really bugs me."
  Peer: "Yeah, that teacher is really mean." (said in a way that makes clear they see that teacher is upsetting).
- **Sympathizing** (I'm sorry you feel that way).
- **Naming the emotion**
- **Hearing**: listening, and recognizing the feeling of the Seeker, and that a problem exists
- **Eliciting**: making attempts to emotionally draw the Seeker out, and understand the emotions (eliciting can be done by creating an atmosphere that encourages seeker to talk about emotions (via many of the other behaviors on this list).. It does NOT require explicit questions or even use of feeling words to be considered as 'drawing someone out'
- **Understanding**: recognizing the Seeker's feelings
- **Supporting**: making a commitment to being emotionally available

The code is based upon how much the Supporter is aware of the Seeker's feelings behind the problem, is actively trying to find out more about the Seeker's feelings about the problem, and is trying to provide support for those feelings. The more the Supporter is trying to draw the Seeker out emotionally, the higher the emotional support score.

**If Supporter gives lots of support but there's no real call, then this can count, and we should consider whether there might be a murky, implicit call that would get a score of 0.5 on call for emotional support. But, even without this, we can score emotional support given.

**If Supporter is in some way notably unsupportive (i.e. overly focused on self, critical, insulting), then subtract from higher scores above anywhere from 0.5 (unsupportive in very minor ways) – 2 points (pretty insulting or undermining of the support). **

0 *No Emotional Support* No attempt to emotionally support the Seeker is made. Supporter may ignore the Seeker's call for support, or belittle the Seeker's feelings, or the seeker may not have presented any emotionally laden information that would elicit support.
OR
In response to a "bitch session" just passive silence is offered (person might be listening, but you can't tell for sure), or only offering instrumental advice (ignoring emotional part).

.5 *Very Low Emotional Support* Attempts to emotionally support the Seeker are weak. There may be one weak attempt to be emotionally supportive, but the Supporter does not follow through, and is easily derailed from being emotionally supportive.
OR
In response to a "bitch session" person is clearly listening (you can tell (i.e. via eye contact, facial expression) that person is paying attention.

1 *Low Emotional Support* Supporter has made an attempt to recognize the emotions of the Seeker. This effort is not well sustained and Supporter may appear unclear about how the Seeker feels. You have a sense that the Supporter is hearing what the Seeker is saying, but has minimal understanding of the feelings.

OR

Encouragement given once or twice in a non-specific way (to a somewhat uncertain seeker), "I'm wondering if I should ask Mary to the dance?" "that'd be a cool idea." (e.g. said in response to something speaker seems to feel unsure/nervous about.)

OR

In response to a "bitch session" person is listening and at least somewhat encouraging in minimal ways (i.e.: with "mmm hmm's & uh-huh's)

1.5 *Low-Moderate Emotional Support* The Supporter makes at least one clear attempt to recognize the emotions of the Seeker, and some weak attempts to follow through with that recognition. The supporter at least shows s/he understands the seeker's feelings.

EXAMPLE: Teen is nervous hanging around a specific group of kids.

CP: "You don't need to feel stupid around them." [CP is guessing Teen is emotionally uncomfortable, saying this (implicitly) and even addressing it a bit (i.e. implying there's no need to feel stupid).]

OR

Encouragement given more often in a non-specific way to an uncertain seeker.

0 *Moderate Emotional Support* The Supporter has made some effort to understand and respond supportively, and has made a weak attempt to emotionally draw the Seeker out. For the most part the supporter is interested in the Seeker's thoughts and feelings.

OR

Encouragement or emotionally supportive statements that are highly specific and targeted at the seeker's distress, but without directly saying anything about feelings.

2.5 *Moderate-High Emotional Support* Example: reflecting feelings by telling own stories (that are sensitive to the feelings presented (rather than just going off on one's own experiences).

OR

Supporter has made several efforts to understand and respond and is clearly trying to draw seeker out at times, though only somewhat effectively.

3.0 *High Emotional Support* A few instances of the Supporter creating an atmosphere that makes it easy to talk about feelings (i.e. using feeling words, making clear they recognize the emotion around the topic and that its OK to talk about); or, expressing interest in seeker's feelings; or, asking about the feelings; saying will be there to help. Empathy may happen via supporter's statements about feelings of seeker, more than with empathic questions. This happens, but only a bit, it's not the persistent theme of the interaction.

OR

Fully meeting the person's emotional need (i.e. fixing the problem) *with an unusually emotionally intense* and sensitive response, but without really addressing/drawing out the feeling.

EXAMPLE: Teen: "I'm worried that I'll lose you as a friend."
Peer: "I'll stay your best friend."

3.5 *Very High Emotional Support*

4 *Highest Emotional Support* The Supporter clearly recognizes Seeker's emotional distress and makes clear attempts to draw the Seeker out. He/she clearly expresses warmth, concern, sympathy toward other and his/her feelings. *This persists throughout most of the interaction.*

EXAMPLE: Kid upset about fight with a best friend, Mom says: "Oh my…I bet that got you really upset….I know how much that friendship means to you. Is that why you've been really upset the last few days?"
EXAMPLE: Kid upset about a skin problem, Mom:"I really want to help you with this… Does it upset you when kids tease you about this? … You're as good as anyone if not better."
OR
Meeting the person's emotional need, and addressing the feeling.
EXAMPLE: Teen "I'm worried that I'll lose you as a friend.
Peer: "I'm sorry you were worried, that sounds hard, of course I'll be your best friend."

Appendix XII. Supportive Behavior Task Coding: Best Friend's Valuing

This code is intended to capture the extent to which each person demonstrates that they care about, value, and genuinely like the other (i.e., how deep does their friendship/ relationship seems to be). Such displays encompass verbal expressions, voice tone, facial expressions, and body postures/behaviors that show warmth and a sense of wanting to build the relationship. Such demonstrations can include verbally empathizing, touching, having a warm facial expression, validating the other, positive teasing with no edge, etc. Ratings for this code should be made independently of (i.e., while ignoring) any negativity in the interaction. In other words, even if there is marked negativity in the interaction, the participants can still be rated high for valuing if they meet the criteria listed below. Especially for parent teen interactions, one way you show you like someone is by saying something that may be a little negative (i.e. a rule) but doing it in a nice way.

In Peer relationships, showing you care about the other person shows you must like the person, so caring counts, but in parent relationships, caring is assumed, so we really focus on how much they LIKE or OVERTLY SHOW they CARE ABOUT each other. (Parents who are angrily focused on grades, wouldn't necessarily get higher than a 0, but parents' who are focused on grades and showing they care about kids well being would get scored more highly).

Some Notes on Valuing and Touching:

* Parents just fixing a kids appearance with touch (i.e. straightening hair) doesn't count as valuing.
* Romantic Partners: The key is to score touching to the extent it captures attempts at support or validation or affection, and not other stuff.
    * touching which is primarily sexual vs. affectionate does not count.
    * touching which is unthinking and automatic doesn't count (handholding without paying attention doesn't count, but handholding could count if there's affection, conscious intention, shown. (i.e., RP rubs teens back while stating "I know it will be hard for you").
    * we want person to feel valued as a person, not just as a body…

***NOTE**: DO NOT COUNT ROMANTIC PARTNER TOUCHES ALONE AS HIGHER THAN A 2, AND IT ONLY WILL BRING THE SCORE TO A 2 IF IT CAPTURES A QUALITY THAT IS SUPPORTED BY OTHER ASPECTS OF THE INTERACTION.*

0 

You can't tell if the person likes or cares about the other, or they seem ambivalent, or worse (example: strangers sitting on a bus and having a conversation, where they really have no interest in each other). For parents: there's no behavior in the interaction that shows they likes their kid (even if we assume they must because they're a parent and they may not be openly hostile).

OR

There are a very few small signs of liking in an otherwise neutral (or negative) interaction, but these don't really change the tone of the interaction from primarily neutral/ambivalent or negative.

0.5 Tone is friendly, but nothing else.

1.0 

The person seems to like (and/or for peers care about) the other but you are not necessarily sure how genuine or deep the positive/warm feelings are. There is some positive tone and warmth, it is very subtle and could be missed.

OR

There could be a lot of animation (consistent enjoyment of the interaction), but no real sense of
or demonstration of warmth, like, or valuing of the other. Here, the interaction seems fine, but it's difficult to judge the closeness of the friendship or relationship.
OR
Placating that may not be honest
OR
Brief demonstrations or very implicit demonstrations of showing valuing of the other

1.5 Person doesn't demonstrate any warmth (beyond what nice people generally show to strangers) BUT in other ways shows that s/he is a good friend (i.e. "I don't have any friends at the dance so I might not go." A: What am I chopped liver? We're friends, we could hang out.") Shows the friendship (and thus the valuing) but without using warmth to do it.
OR
The person seems to be demonstrating that he/she is a good friend to the other without demonstrating any warmth. Sincere placating: The speaker really wants the other person to feel OK. The speaker is trying to be genuine; though it is difficult to gauge the depth and sincerity of the positive expression.

** **Scores above a 2 must have demonstrated signs of warmth/complements. These signs may either be direct/intentional OR indirect/implicit.**

2  Consistent enjoyment of the interaction AND Showing valuing/warmth is present but inconsistently or ambiguously.
Some clear positive tone and warmth, but pretty implicit. The listener would suspect that the other cares about them. You feel like you know the positive feelings are genuine – but there are no CLEAR demonstrations of the positive feelings, valuing, or warmth.
OR
Non-incidental touching that's not affectionate (i.e. grabbing person's shoe to show them something about it, where they didn't need to do this).

2.5 Definitely wouldn't miss the warmth, but not bowled over by it.
OR
Clearly caring rule setting (by a parent)…must clearly show the teen that the parent is setting the rules because they care about the kid in order to be scored. Simply setting rules that *imply* that the parent cares (or why else would they set them) does not count. The caring must come through to the teen in the ACT of setting the rule. Simple rule setting without this would be a "0".
OR
Invitation to do something specific together "Do you want to go look at drums together after this?"
OR
More flippant, less than convincing complement.
OR
Touching in a grooming way (i.e. touching that's a bit more intimate than grabbing a shoe, but not mainly affectionate—See romantic partner exception above).

3 

The speaker is not <u>totally</u> warm and fuzzy, or showing valuing of the other. Real, honest, substantial, non-trivial amount of warmth. The listener would definitely know that the other is on his/her side and that the positive feelings are genuine. There are clear demonstrations of positive feelings/valuing.

OR

Sincere complementary statement; statement that shows they really care about friendship.

OR

"Do you want to hang out together after this?" (less task specific than 2.5 example). [NOTE: this works for friendships; but by itself might not mean anything for a romantic relationship. Because we assume they spend time together, and have some commitment, it takes an active statement of interest in the other person not just commitment to the relationship to count here as warmth/valuing. An equivalent statement for a romantic relationship might be: "I want to plan ways we can be spending more time together"].

OR

Touching in an affectionate way (but see romantic partner exception above).

4 

The speaker's behavior overall gives a quite warm and fuzzy feeling to the interaction, is showing real affection, valuing and liking the other is strong and clear. The listener knows that the other <u>REALLY</u> cares about him/her.

Appendix XIII. Neighborhood Quality Questionnaire

Here are some descriptions of neighborhoods. Please think about your neighborhood (the houses/apartment complexes and streets within a few block of where your family lives). Circle your answer.

	Not at all True	Not Very True	Sort of True	Very True
1. Overall, I like living in my neighborhood very much.	**1**	**2**	**3**	**4**
2. I feel like I fit in with the people in my neighborhood.	**1**	**2**	**3**	**4**
3. The relationships I have with my neighbors mean a lot to me.	**1**	**2**	**3**	**4**
5. I believe my neighbors would help me in an emergency.	**1**	**2**	**3**	**4**
6. Most people who live in my neighborhood would be able to tell if someone was a stranger to the neighborhood.	**1**	**2**	**3**	**4**
7. My neighborhood is a better place to live than other nearby neighborhoods.	**1**	**2**	**3**	**4**
8. In the past two years, things in my neighborhood have gotten worse.	**1**	**2**	**3**	**4**
9. In general, people in my neighborhood do not watch out for each other.	**1**	**2**	**3**	**4**
10. There are people in my neighborhood who sell drugs.	**1**	**2**	**3**	**4**
11. There are places in my neighborhood where you can buy or sell stolen property.	**1**	**2**	**3**	**4**
12. There is high unemployment in my neighborhood.	**1**	**2**	**3**	**4**
13. There are abandoned buildings in and vandalism in my neighborhood.	**1**	**2**	**3**	**4**
14. There are street gangs in my neighborhood.	**1**	**2**	**3**	**4**
15. Crimes like assaults and burglaries occur in my neighborhood.	**1**	**2**	**3**	**4**
16. There are run-down buildings and yards in my neighborhood.	**1**	**2**	**3**	**4**
17. There are person who regularly depend on welfare in my neighborhood.	**1**	**2**	**3**	**4**
18. There are places in my neighborhood where I would be afraid to walk alone at night.	**1**	**2**	**3**	**4**
19. There are teenagers in my neighborhood who use drugs like cocaine, crack, or heroin.	**1**	**2**	**3**	**4**
20. Violent crimes that involve weapons occur in my neighborhood.	**1**	**2**	**3**	**4**
21. There are a lot of fights (without weapons) in my neighborhood.	**1**	**2**	**3**	**4**
22. There are teenagers out on the streets late at night in my neighborhood.	**1**	**2**	**3**	**4**
23. Theft is a problem in my neighborhood.	**1**	**2**	**3**	**4**